

5-1965

Magma 1965

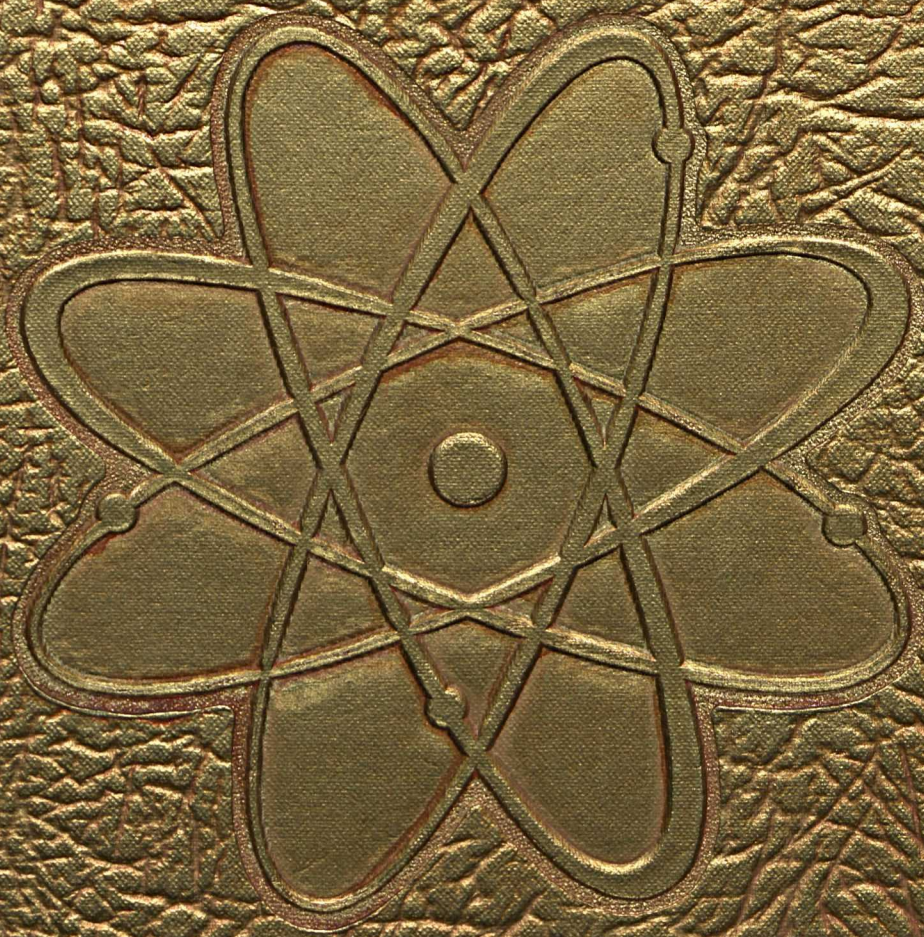
The Student Body of the Montana School of Mines

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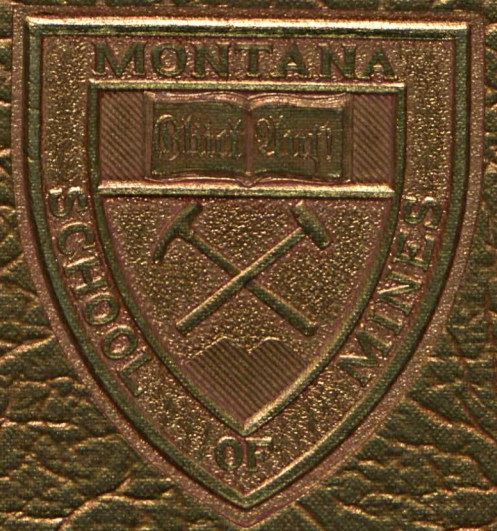
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'65 MAGMA



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MONTANA COLLEGE OF
MINERAL SCIENCE AND TECHNOLOGY
BUTTE

C/



PRESENTING THE

1965

MAGMA

"Should auld acquaintance be forgot,
And never brought to mind?
Should auld acquaintance be forgot,
And auld lang syne!"

Robert Burns

Published By

The Student Body

Montana School of Mines

Butte, Mont.

Editor James Ek

Library Montana Tech
35684 Butte, Montana





Marcus Daly

LOOKING TO THE FUTURE

A pioneer miner who first developed the famous properties on the hill overlooking the site of this memorial which is erected by his fellow citizens in tribute to his noble traits of character, in grateful remembrance of his good deeds and in commemoration of the splendid services he rendered as a builder of the City of Butte and the State of Montana."

Engineers' Creed

As a Professional Engineer, I dedicate my professional knowledge and skill to the advancement and betterment of human welfare.

I pledge:

To give the utmost of performance;

To participate in none but honest enterprise;

To live and work according to the laws of man and the highest standards of professional conduct;

To place service before profit, the honor and standing of the profession before personal advantage, and the public welfare above all other considerations.

In humility and with need for Divine Guidance, I make this pledge.

*Adopted by
National Society of Professional Engineers
June, 1954*



EDWIN G. KOCH, President

President's Message

Webster defines progress as, "a movement forward, an advance to an objective by marked stages or degrees, a going or getting ahead". Progress is essential to well-being. No society within recorded history has been able to survive in the absence of it. Montana School of Mines is dedicated to progress: academically, socially, professionally, and physically. We strive continuously toward objectives which will result in progress, and in reaching these objectives we create the "new look", the "improved image" which is the theme of this year's Magma.

The lighted "M" on Big Butte and the new athletic field being constructed in the gulch are viewable evidence of this "new look". Also we have created a "new look" and have enjoyed invigorating progress in many ways not so apparent to the casual observer. We have experienced continuing increases in student population, and this year for the first time in the history of the institution we have an enrollment of more than 500. We now have an IBM 1620 computer on the campus, thanks to our faithful alumni and a grant of money from the Montana Power Company. There is a noticeable increase of sponsored research on our campus, including a beryllium project which connects our institution directly to NASA and space metals research for the first time. This and other research projects have been instrumental in acquiring for our school many sophisticated items of equipment which enhance both instructional and research capabilities. All degree curricula, as well as offerings in support areas, have been revised and updated to meet current needs for professional development. Three new degree programs have been added recently, and soon these programs will be producing graduates to fulfill essential industrial needs. We are now working toward improved course integration and sequence with a view to enhancing quality and effectiveness. As our school continues to grow and prosper, we look forward to the addition of other minerals industry-related degree programs to better science orient our engineering curricula. These and other kinds of progress will be reflected in a constantly changing "new look" for our campus and our school.

The reputation of Montana School of Mines depends upon a number of interrelated and interdependent factors: the purpose, industry, and maturity of the students; the quality of faculty and instruction; finally the capability and effectiveness of our graduates in their professional endeavors. If each contributes its fair share toward progress, our college will continue to enjoy an excellent reputation in the years to come. To this end, good luck and God speed to the class of 1965!

KNOWLEDGE

Is Our Most Important Product

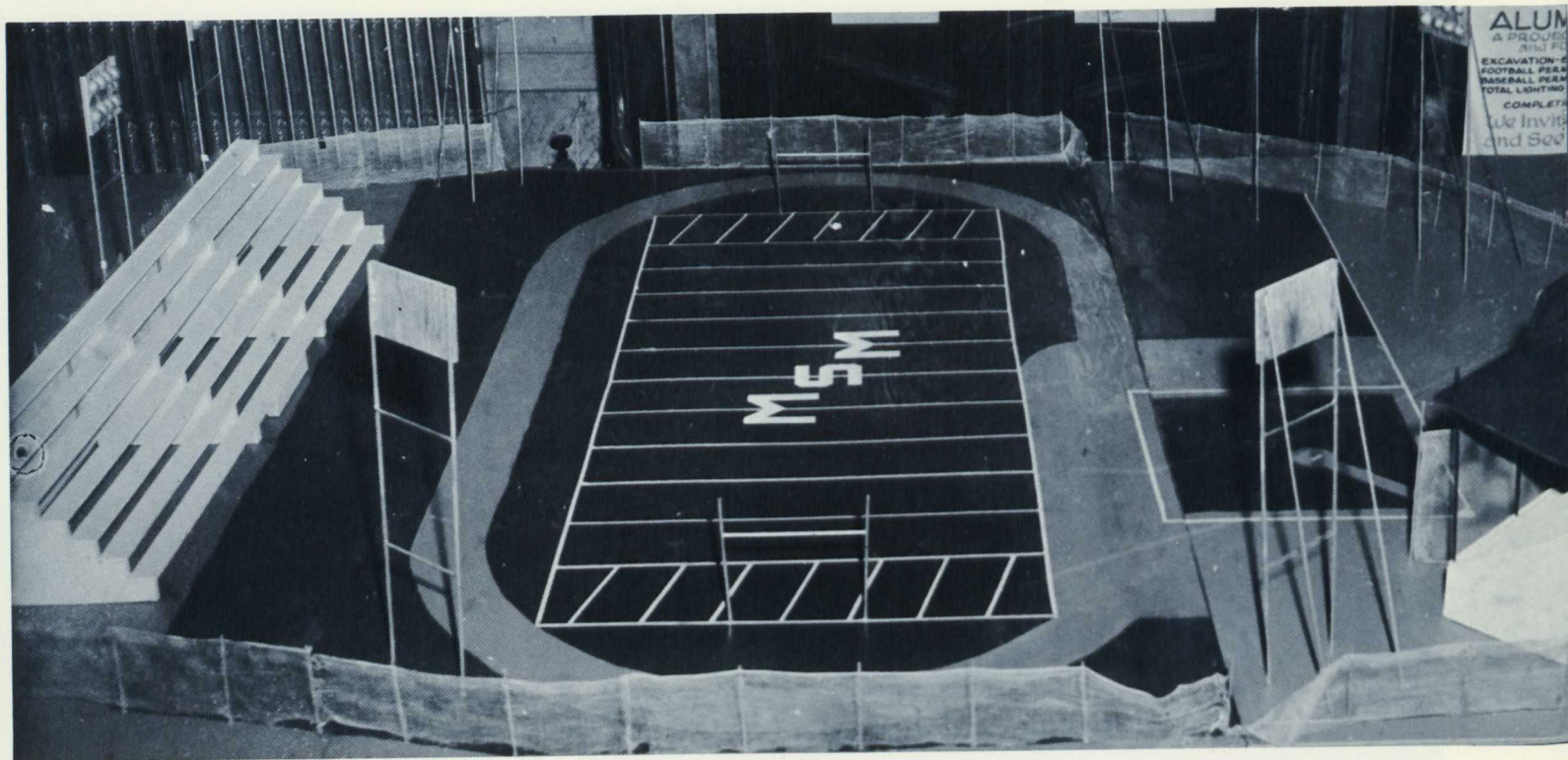
and

Books Are An Important Source Of

KNOWLEDGE

Montana School of Mines Library





Model of Alumni Stadium

ALUMNI CONTRIBUTE SPIRIT AND RESULTS

FRANK M. ANTONIOLI
Alumni President

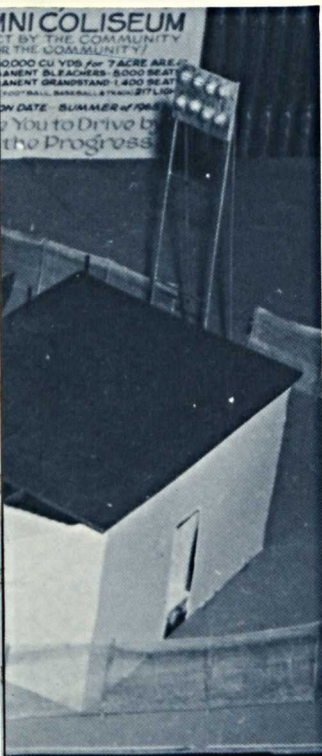


1964-65 Officers

Frank M. Antonioli, '50,
PRESIDENT
John F. Harvey, '43, FIRST VICE
PRESIDENT
Roy G. MacFarland, '32,
SECOND VICE PRESIDENT
Rayworth F. Howe, '34,
SECRETARY-TREASURER

EXECUTIVE COMMITTEE

Arthur E. Adami, '07
Edward P. Shea, '22
Joseph E. Shaw, '39
James K. Archibald, '43
Lester G. Zeihen, '35
A. C. Bigley, Jr. '60
Roy M. Hammond, '35
Robert P. Corbett, '40



The renewed Alumni interest in the advancement of the Montana School of Mines began with the Alumni Project 600 which was initiated to increase the student body to 600 by maintaining our academic image and improving our physical image. As we all know, we are rapidly approaching this 600 student goal and, in addition, with substantial help from the faculty, students and business, our efforts have been rewarded by several tangible assets.

The "M" on Big Butte was repaired and lighted and is certainly a very lovely tiara and the pride of the entire community.

The finest campus computer center in the Minerals Education Field has been initiated and we purchased an IBM 1620 computer which is presently being used by students, research and industry.

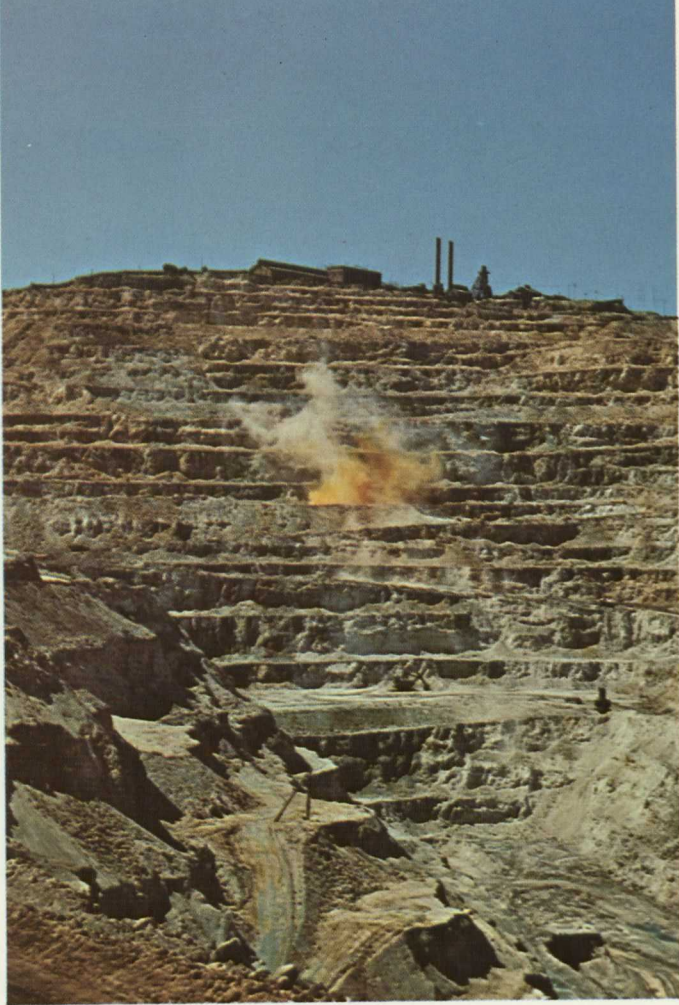
Under the able direction of Mr. E. I. Renouard, the finest athletic field in the State is now being completed on our campus. This field will be available for community athletic events, within the capabilities of the turf, and thus, will serve to draw the general public closer to us.

We are not relenting in our efforts to keep this the finest Minerals College in the World.

FOR PROPOSED ATHLETIC STADIUM

Breaking Ground for the New Stadium





The Berkeley Pit
The Weed Concentrator

THE SCHOOL...

and...

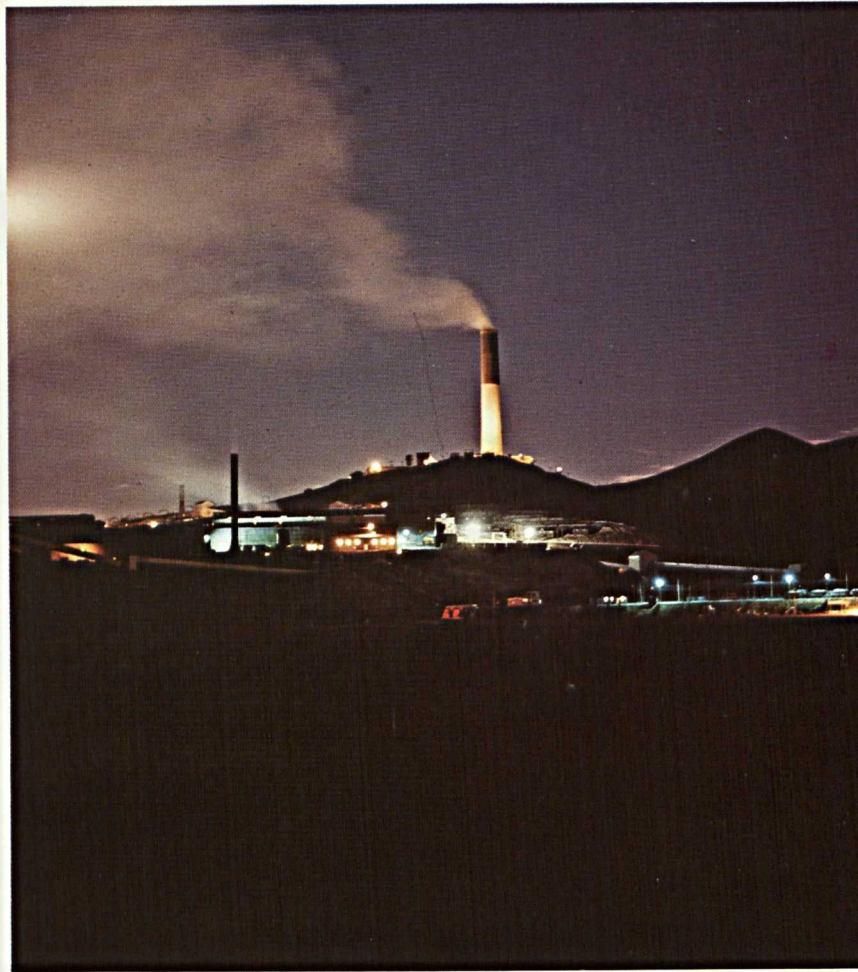
THE INDUSTRY



INDUSTRY...

TRIAL...

AND SUCCESS...



The Anaconda Smelter

The Orphan Girl Mine



Montana School of Mines is situated in the heart of a tremendous mineral producing area. In proximity to the college are numerous mines which produce copper, gold, lead, zinc, and other minerals in abundant quality. Butte is replete with both underground and pit operations; the latest industrial techniques are developed and utilized in geological explorations, mining, metallurgical, and mineral dressing activities. There are no campus mines here; the entire local mining complex is the students' campus for both practical experience and study.

The creation of Montana School of Mines had as its prime objective, "Education of the highest possible quality, and the preparation of young people for outstanding professional attainment.... The courses of study and the extracurricular activities are intended to provide broad and thorough training for both enlightened citizenship and professional excellence." From the date of its inception the college has devoted its efforts to realizing and maintaining this objective.

In February 1893, the foundations of the college were laid as a result of acts of the Third Legislative Assembly of Montana. In 1895 a founding commission took steps to establish Montana School of Mines. Construction on the first building was begun in 1896 and the college formally opened on September 11, 1900, when the first students were enrolled. Mining engineering and electrical engineering were the original curricula. The first class was graduated in 1903. The curriculum in electrical engineering was discontinued in 1904.

In 1919 metallurgical engineering was added as a degree field and nine years later the college was empowered to offer degrees in geological engineering. In response to the development of the petroleum industry in Montana the college was granted authority in 1947 to award degrees in petroleum engineering. The following year a mineral dressing option was added to the metallurgy curriculum.

In 1957 the curriculum in geological engineering was divided into two options, mining and petroleum. In 1963 additional curricula in engineering science and geophysical engineering as well as a materials science option in metallurgy were authorized. A separate department of mineral dressing engineering was established in 1963.

The graduate school established in 1929 provides the opportunity for advanced training on the master's level in the following fields: geology, geological engineering, mineral dressing, mineral dressing engineering, mining engineering, and petroleum engineering. Montana School of Mines continues to be unique in American higher education because all degree curricula are directly related to the minerals industry.

Plans for the future include closer and more detailed orientation of engineering and physical sciences with professional offerings, the development of engineering-related degree curricula in the physical sciences and mathematics, and the offering of doctoral work in the principal major departments. In the interest of efficiency and effectiveness, considerable renovation and remodeling of existing structures is contemplated for the immediate future. In the years ahead new buildings are planned to meet the requirements of a new heating plant, expanded facilities for the departments of Mining Engineering, Geological Engineering, and Mineral Dressing Engineering and additional research and office space.

Prof. F. Kelly

PROFILES IN
MINERAL INDUSTRY
EDUCATION

by F. Kelly

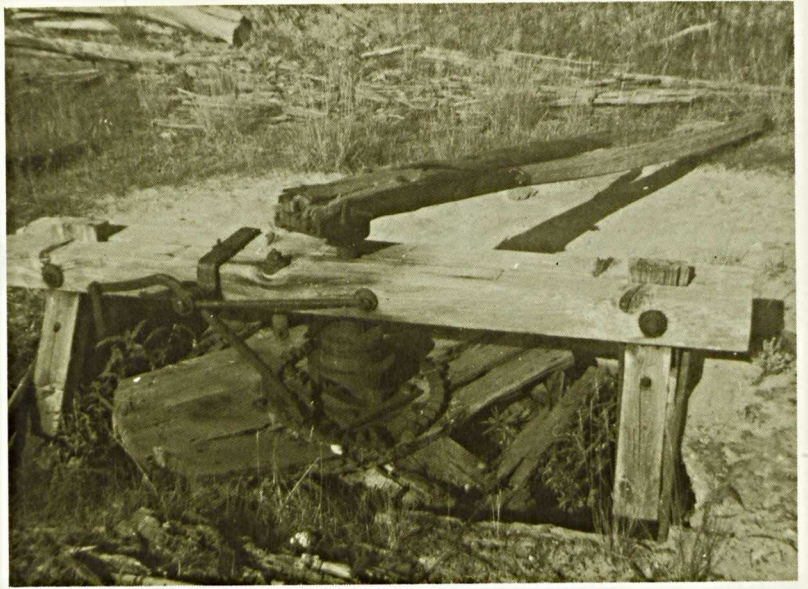




ANOTHER DRY WELL...?



REMNANTS OF THE PAST



I care not of the place of your birth,
Nor the land from whence you came;
I care not of your share of the earth,
Nor the long ancestry of your name.

I care not of your genius great and bold,
Nor the station in which you live;
I care not for your great riches of gold,
Nor the way in which you give.

I care not of your looks nor your clothes,
Or if from mine, farm or mart;
I care only for the simple goodness that flows
To humanity from the depths of your heart.

I care not of your talents or selfish pride,
Nor exultation of your personal life;
I care not of your slouch nor your stride,
Nor your ambition in this worldly strife.

I care not of conventions, either old or new,
Nor the way you read your prayer;
I care not of what you achieve or do,
Nor in greed to own, how you fare;

I care not how modest, lowly, infirm or weak--
And if life seems not to start,
I care only for the gentle word you speak
To humanity from the depths of your heart.

W. R. A.



Old Prospector
Panning Gold



*"In every line of human activity, a united
written expression of what is best for the
common good becomes a strong force for
progress."*

—Heermance

FACULTY



Humanities and Social Studies

The Department of Humanities and Social Studies, a member of the American Society for Engineering Education, keeps abreast of all the latest developments. Visits are made to other engineering schools, and individual teachers are themselves members of such forward-looking groups as the National Writers' Club and the Montana Institute of the Arts. At the meetings of the University English Council, American Association of University Professors, and other organizations, modern methods of teaching are discussed. The teachers also learn about teach-

ing methods and problems of education from magazines to which they subscribe. In classrooms are found such modern teaching aids as film strips and records.

Those students planning to become economists, social scientists, sociologists, psychologists, cultural anthropologists, research historians, political scientists, writers, teachers, journalists, or foreign language experts can begin their studies in the Department of Humanities and Social Studies at Montana School of Mines.



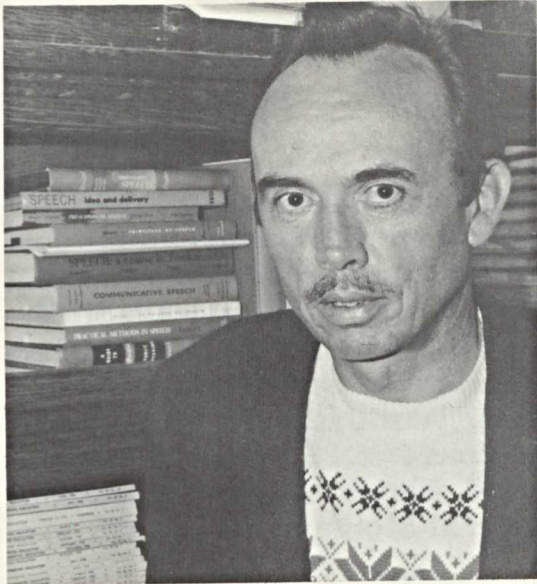
W. CLIFFORD LAITY, B.A., M.A.
Professor of Humanities and Social Studies



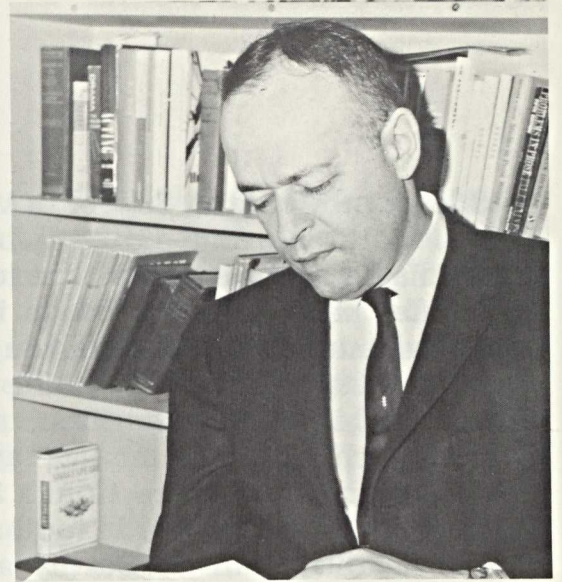
WILLIAM L. ROBERTS, B.A., M.A.
Instructor in Humanities and Social Studies



LOUISE L. McBRIDE, B.A., M.A.
Professor of Humanities and Social Studies.



JAMES H. ALBERTSON, B.A., M.A.
Associate Professor of Humanities and
Social Studies



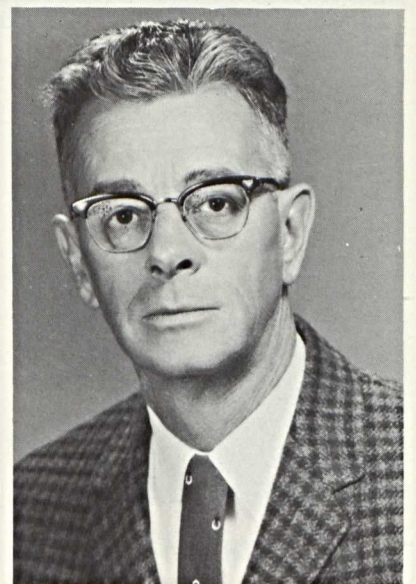
ALFRED SIMON, B.A., M.A.
Assistant Professor of Humanities and
Social Studies



AGNES O. JONES, B.A.
Instructor in Humanities and Social Studies



FRANK H. KELLY, B.S.S., M.A.
Associate Professor of Humanities and
Social Studies.

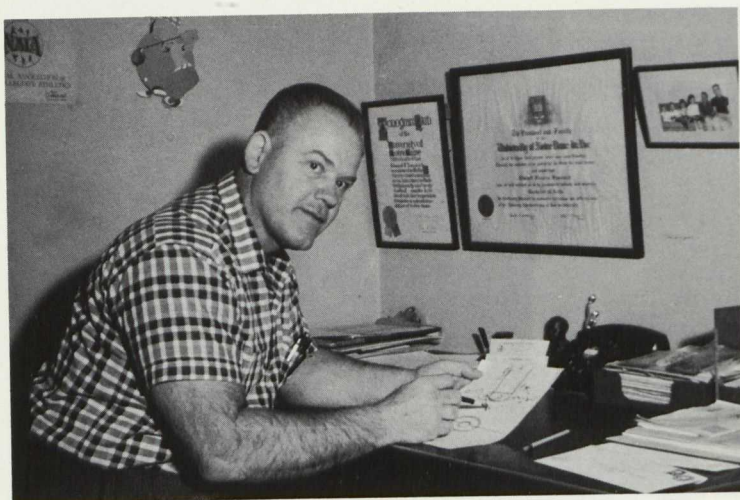


WILLIAM W. CHANCE,
B.E., M.A.
Professor of Humanities and
Social Studies

Athletic Department

Athletics at Montana School of Mines held little importance until 1923, when Dean McAuliffe became the athletic director. Under McAuliffe, interest increased in intercollegiate and intramural sports throughout the years. In 1956, Dean McAuliffe was advanced to his present position, and later Ed Simonich became the new athletic director. In the past years Coach Simonich has been aided immensely in football by two able assistants, Dan McCarthy and Gene

Downey. For the past two years, Ed Simonich has been helped with basketball by Tom Lester and Jim Freeborn. In the spring, Bill Collins takes over baseball, while Simonich handles track. McCarthy, Downey, Lester, Freeborn, and Collins all volunteer their services. Working with Ed Simonich in the Department of Physical Education is Mrs. Sarsfield, who is the athletic instructor for the women at Montana School of Mines.



EDWARD F. SIMONICH, B.A.
Director of Athletics; Coach; Associate Professor of
Physical Education



MARGARET SARSFIELD, B.A.
Instructor in Physical Education

Chemistry

For the undergraduate mineral industries engineer, chemistry is a systematic study of the fundamental principles of inorganic, analytical, organic, and physical chemistry. Also, the general student interested in chemistry can begin his academic training at the Montana School of Mines.

The Chemistry Department has recently added the organic courses. In addition to

installing new light fixtures in the Metallurgy Building, other changes to be made in the future include remodeling the dispensing stock room; securing new laboratory furniture in the second-floor labs; replacing the chairs in the lecture room with auditorium-type seating; and enlarging and rearranging room 214.



KENNETH N. McLEOD,
B.S., M.S., Ph.D.
Professor of Chemistry



KEITH ENSLEY, B.A.,
Ph. D.
Assistant Professor of Chemistry



JOSEPH MURRAY, B.S.,
M.S.
Assistant Professor of Chemistry

Physics

When the school commenced classes in 1900, the Physics Department was one of the two original departments. At that time, the curriculum included mechanics, heat, light, and electricity. Today, under the direction of Dr. Nile, the curriculum has been expanded to include sound, magnetism, friction, and atomic physics.

Dr. Nile also maintains the seismograph, which is used by the entire Northwest area.

Mr. McCaslin, assistant professor of physics, instructs the student in the physics lab and teaches courses in electronics, computer orientation, and geophysics.



DR. S. W. NILE, A.B., Ph.D.
Professor of Physics



JOHN G. McCASLIN, B.S., M.S.
Assistant Professor of Physics

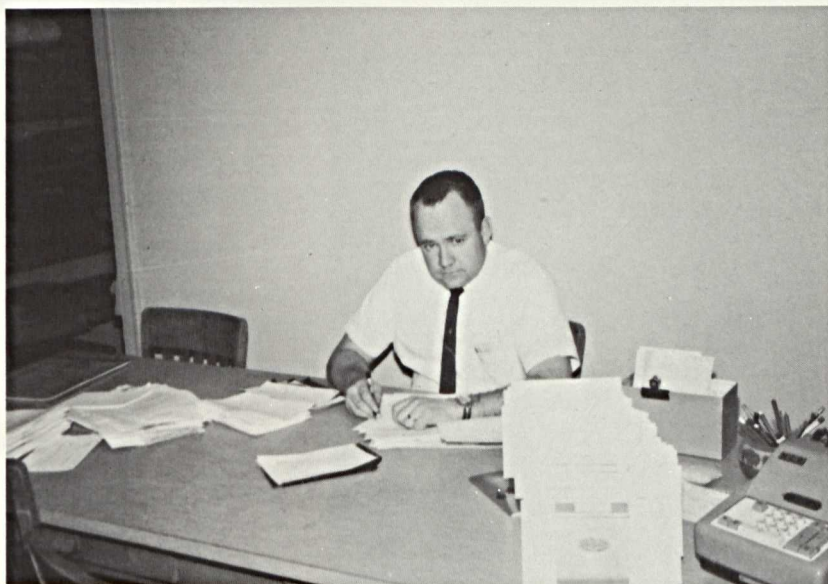
Administration



LORETTA B. PECK, B.A., M.A.
Librarian



D. CHARLES McAULIFFE, E.M.
Vice-President; Dean of College; Pro-
fessor of Engineering Drawing.



VICTOR BURT,
Acting Registrar

Mathematics

The mathematics courses have been changed around to fit into the modern trends according to the recommendations of the Committee on the Undergraduate Program on Mathematics. Math 007 now includes some analytic geometry, and is therefore a better preparation for freshman regular math. Math 101, which reviewed a great deal of algebra and trigonometry, and was

a basic course for going into calculus, has been eliminated from the curriculum entirely. Math 102 is now taught the first semester of the freshman year under the title of Math 121; and what was formerly taught the first semester of the sophomore year is now taught during the second semester of the freshman year.



ADAM J. SMITH, A.B., M.A., Ph.D.
Professor of Mathematics



WILLIAM A. CATENARO, A.B.,
B.S., M.A.
Assistant Professor of Mathematics



ELIZABETH S. SATTER, B.A., M.A.
Assistant Professor of Mathematics

Metallurgy

The Department is headed by Dr. Vernon Griffiths, who came to MSM in 1959. The two associate professors, Dr. Fathi Habashi and Mr. R. I. Smith, came to MSM in 1964 and 1947 respectively.

The metallurgical engineer is responsible for devising and conducting processes to extract metal from ores or concentrates.

Also he is responsible for production and fabrication of practically useful alloys from the raw metals resulting from the extractive process.

Due to the increasing demand for alloy materials, the demand of the metallurgical engineer has been increasing.



VERNON GRIFFITHS,
B.Sc., M.Sc., Sc.D.
Associate Professor of Metallurgy.



RALPH I. SMITH, B.S.,
M.S.
Associate Professor of Metallurgy



FATHI HABASHI, B.S.,
Dr. Techn.
Associate Professor of Metallurgy

Engineering Science

In 1957, the Department of Mechanics and Electricity was changed to the Department of Engineering Science.

The new Engineering Science curriculum, in its second year, provides courses in basic engineering, such as strength of materials, mechanics, thermodynamics, and other courses relating to basic engineering. New

courses being added to the curriculum are soil mechanics, for which equipment has arrived, and advanced A-C machines, which also has new equipment. A re-activated, high-frequency laboratory is in the process of completion.

This department is headed by Professor Koehler Stout, assisted by Mr. Young.



FRANCIS M. YOUNG, B.S.
Instructor in Engineering Science



KOEHLER S. STOUT, B.S., M.S.,
L.L.B.
Associate Professor of Engineering
Science.

Petroleum

The Petroleum Department under Professor Gustav Stolz, offers Bachelor of Science and Master of Science Degrees in Petroleum Engineering.

The petroleum engineer is involved in the drilling for, and recovering of, oil from underground reservoirs. A petroleum student receives courses in exploration, and production from both economic and engi-

neering standpoints. Courses in reservoir engineering provide the student with a good background in the mechanics involved in producing a fluid from an underground formation.

Graduates from this department have received positions with oil companies in all parts of the free world, and are respected throughout the petroleum industry.



GUSTAV STOLZ, JR., P.E., M.P.E.
Associate Professor of Petroleum Engineering



ROBERT W. MANNON, B.S., M.S.
Assistant Professor of Petroleum Engineering

Geology

The Department of Geology offers the Bachelor of Science Degree, which is subdivided into two options--mining geology and petroleum geology. The Master of Science degree is offered in either geology or geological engineering.

The geological engineer has a wide background in engineering, which enables him to work in any area requiring this knowledge.

Research is encouraged in this department, but the students are mainly trained for mining or petroleum jobs. Course offerings are kept up to date to acquaint the student with the latest research interests.

Because of its strategic location in a large mining center, the School of Mines is in a favorable position for the teaching of geology.



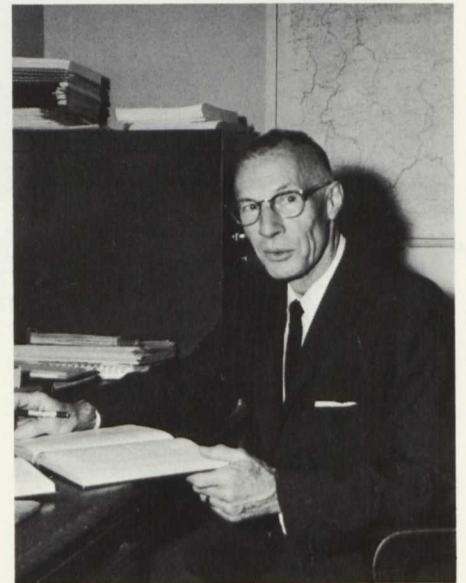
FRED N. EARLL, B.S., Ph.D.
Associate Professor of Geology



WILLARD E. COX, B.S., M.S.
Assistant Professor of Geology



WILLIAM B. HALL, A.B.,
M.S., Ph. D.
Assistant Professor of Geology



HENRY G. FISK, B.S., Ph.D.
Associate Professor of Geology

Mineral Dressing

The student in the Department of Mineral Dressing is taught the separation of materials through physical and mechanical processes. This department has been selected to receive a \$100,000 research contract from the National Cooperative Highway Research Program. The contract is concerned with the development of new techniques to measure adhesion between asphalt and aggregates, and to identify and evaluate influencing factors. The department's instru-

ments for electrokinetic measurements were acquired under a \$50,000 National Science Foundation grant.

The Mineral Dressing Department won first place and \$25 in the E-Days' competition. Its display consisted of explanations of old milling methods, the graduate laboratories, Montana mineral display, industrial exhibits, the cement plant process flow sheet, and a jaw-crusher display.



DONALD W. McGLASHAN, B.S.,
M.S.
Research Professor of Mineral Dressing



GORDON F. ZIESING, B.S.
Instructor in Mineral Dressing

Mining

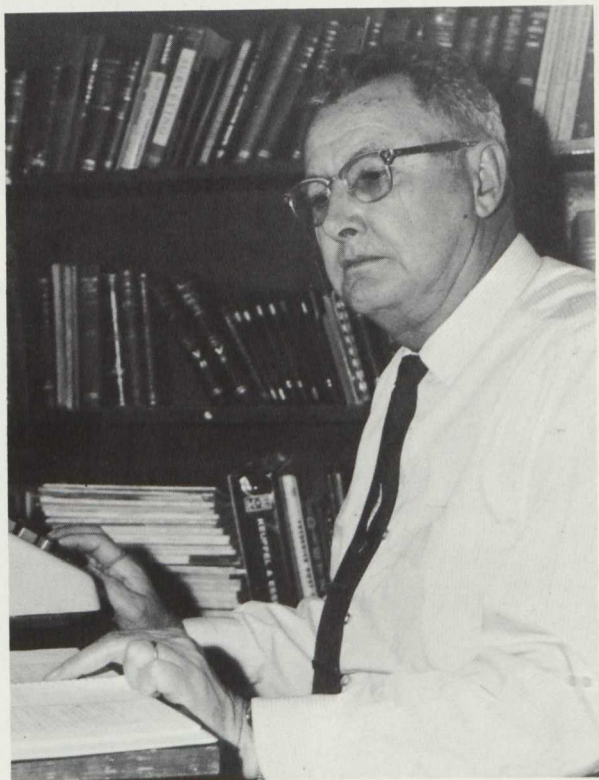
The first degree to be offered at Montana School of Mines was an E. M., Engineer of Mines, granted in 1903. This was the only degree offered until 1922.

In 1920, the department of Mining Engineering, under the supervision of Professor Theodore Simons, was created along with other departments. Presently, the department is headed by Professor William Vine, assisted by Instructor William Van Matre.

The mining engineering is charged with the duties of designing systems of men, machines, and techniques for the efficient

and safe extraction of minerals from the earth. All these operations must be performed in an environment conditioned for the comfort and safety of the men who perform the work.

The curriculum in mining engineering is designed to prepare the student to take his place as a servant of society in the continuous maintenance and improvement of man's physical environment; to prepare the student of analytical and creative ability for construction, production, or operation; and to inspire a sense of professional ethics.



WILLIAM A. VINE, B.S., E.M.
Professor of Mining Engineering



WILLIAM J. VAN MATRE, B.S.
Instructor in Mining Engineering

GRADUATES



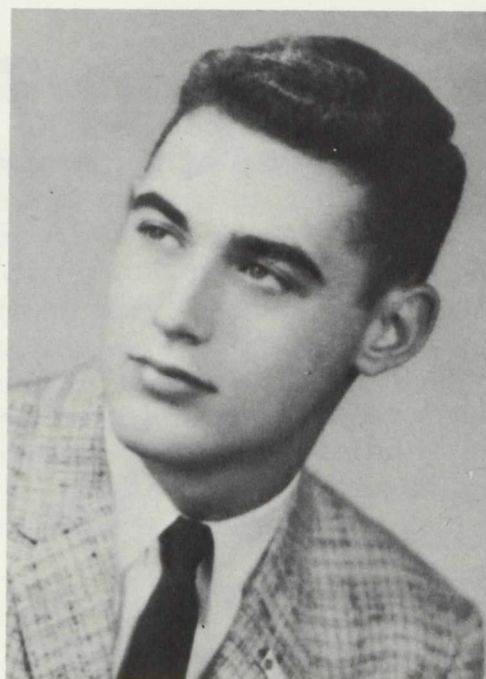
Cworced

BRAR, AMARJIT S.



B.S. in Metallurgical Engineering
M.S. in Metallurgical Engineering

GALE, CHARLES O.



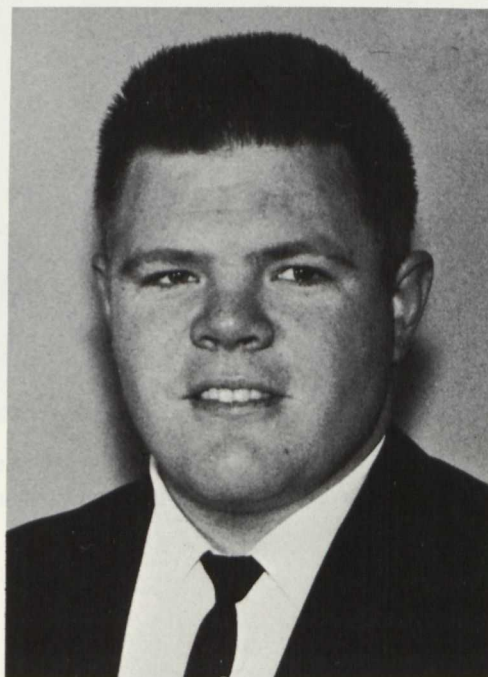
B.S. in Metallurgical Engineering
M.S. in Metallurgical Engineering

MURRAY, RAYMOND J.



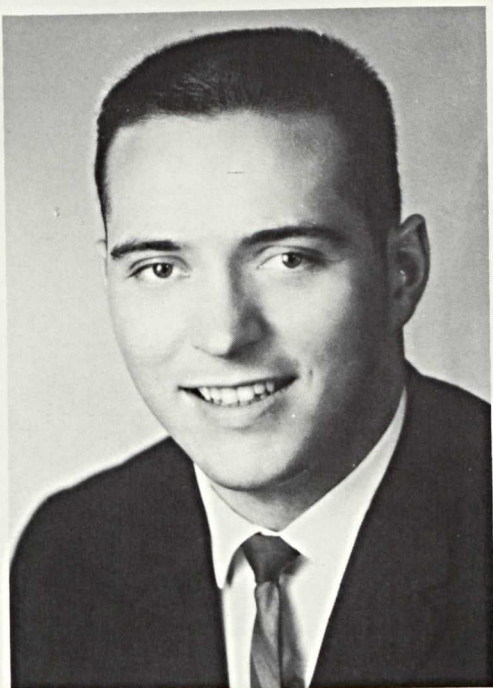
B.S. in Metallurgical Engineering
M.S. in Metallurgical Engineering

SHOGREN, ROBERT M.



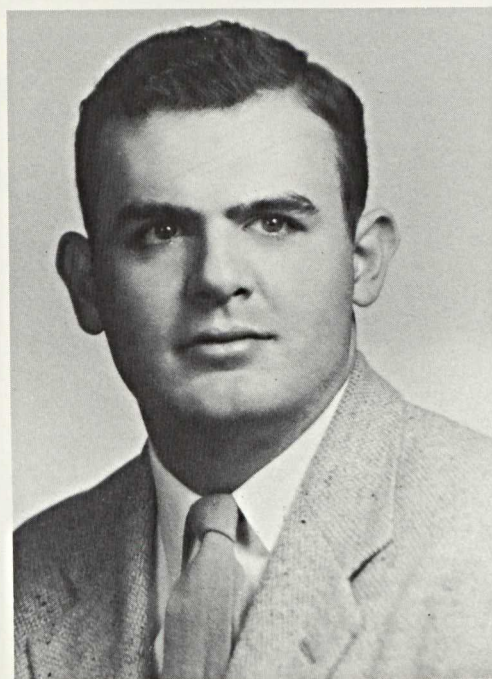
B.S. in Metallurgical Engineering
M.S. in Metallurgical Engineering

HILL, ROBERT B.



B.S. in Metallurgical Engineering
M.S. in Metallurgical Engineering

GILLETTE, CHRISTOPHER



B.S. in Geological Engineering
M.S. in Geological Engineering
(1965)

MOLLER, MAX L.



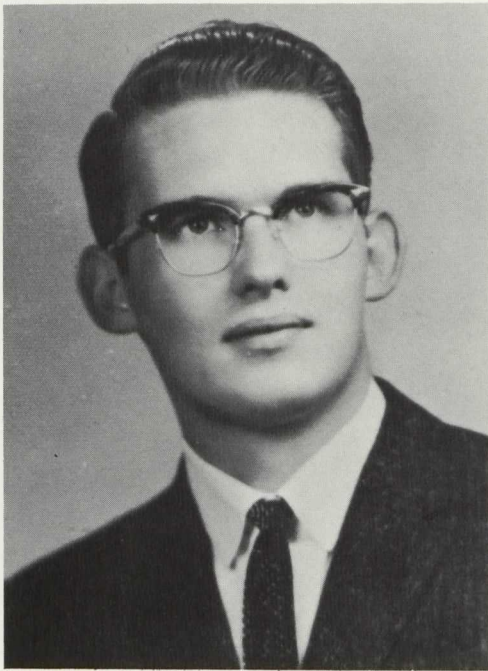
B.A. in Geology
M.S. in Geology

ROVIG, ALLEN D.



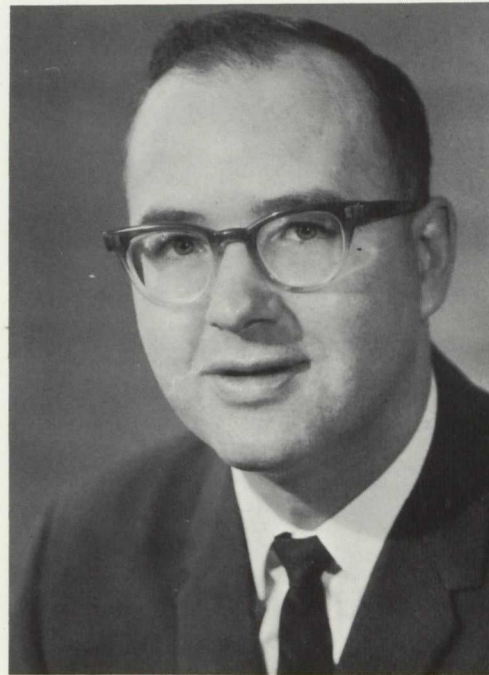
B.S. in Mining Engineering
M.S. in Mineral Dressing Engineering (1965)

KEANE, JOSEPH M.



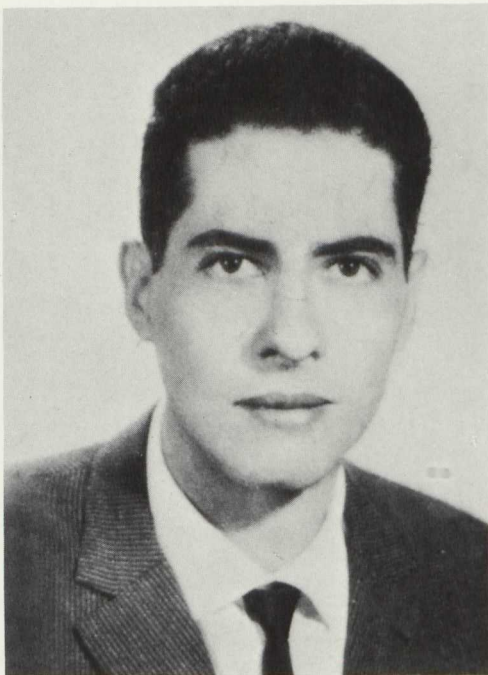
B.S. in Metallurgical Engineering
M.S. in Mineral Dressing Engineering

RICHARDS, JOHN THOMAS



B.S. in Geological Engineering
M.S. in Mineral Dressing Engineering (1965)

VILLENA, GUIDO



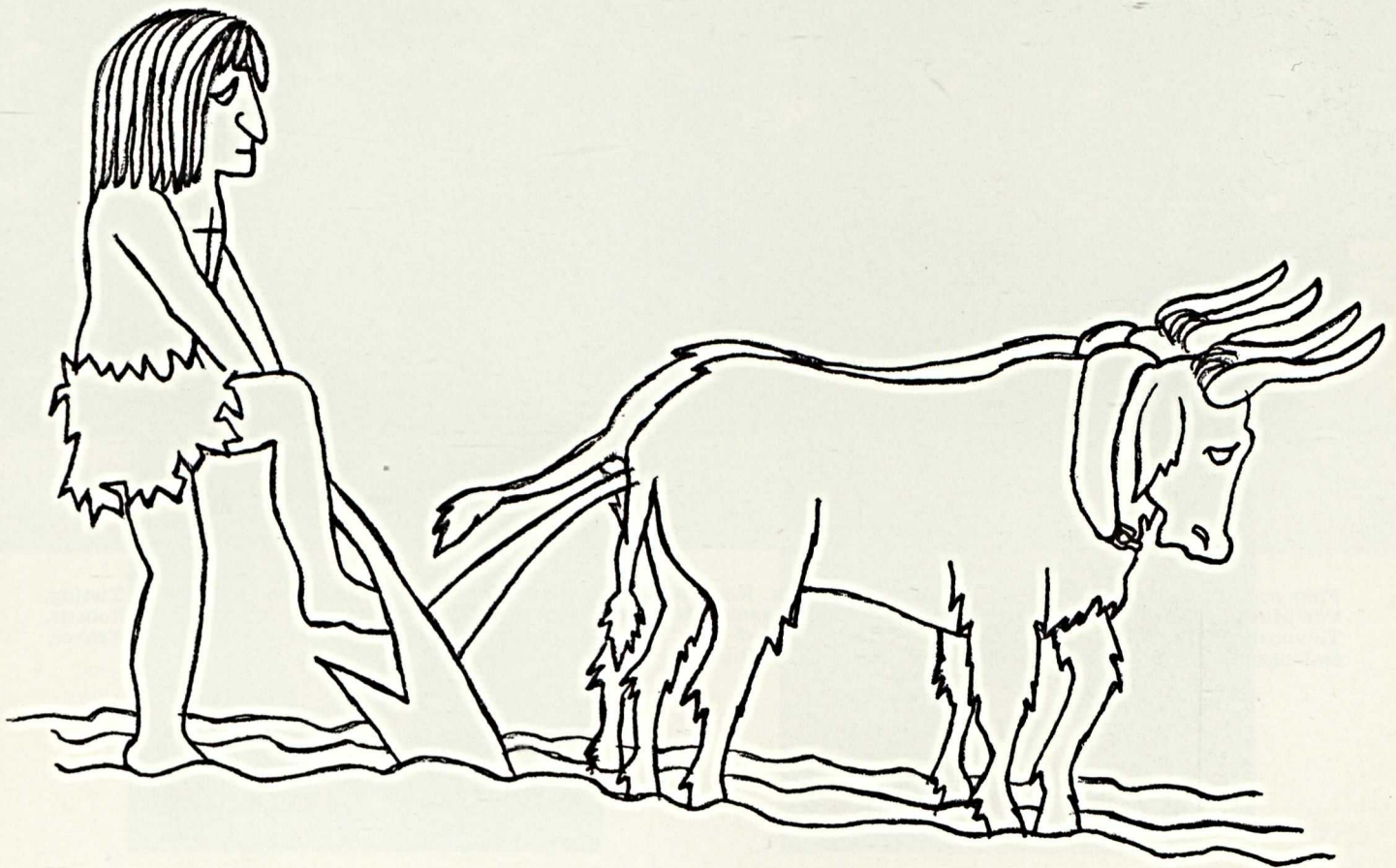
B.S. in Industrial Engineering
M.S. in Mineral Dressing Engineering (1965)

ZIESING, GORDON F.



B.S. in Mineral Dressing Engineering
M.S. in Mineral Dressing Engineering (1965)

SENIORS



Worcester



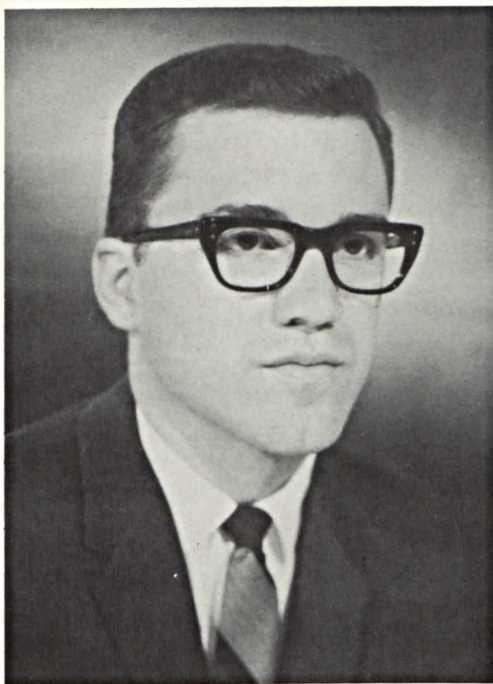
First row: Dr. Schlechten, Dr. Opie, Johnson, Perry, Dr. Koch, Anderson, Scholz, Wendel, Peterson. Second row: Rovig, Ziesing, Van Matre, Richards, Villena, Gillette, Galarreta, Burk, Kandle. Third row: Zacca, Lindquist, Peterson, Ek, Evans, Tyner, Roberts, Toivonen, Blair, Eaton, Awan, Busenius, Wachtler. Fourth row: Yde, Hill, Mazza, Madison, Hyppa, Podobnik, Jenks, Weaver, Stallings, Ylitalo, Marx, Simonich, Fayram, Koskimaki, Hruska.

Senior Class Officers

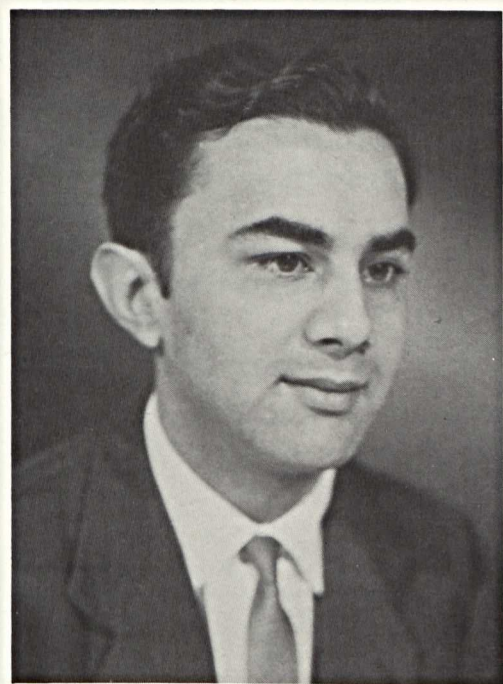


Rod Ylitaldo, Secretary; James Mazza, Vice-President; Mansoor Awan, President; James Ek, Treasurer.

Senior Honor Students



Edward L. Simonich



Mansoor A. Awan

ENGINEERING SCIENCE

THE ENGINEERING SCIENCE ENGINEER receives training that emphasizes mathematics, the physical, chemical and engineering sciences, in addition to engineering analysis and design. Therefore, intensive

training is provided in the fundamentals of engineering with minimal specialization in the usual career fields prior to the bachelor's degree.

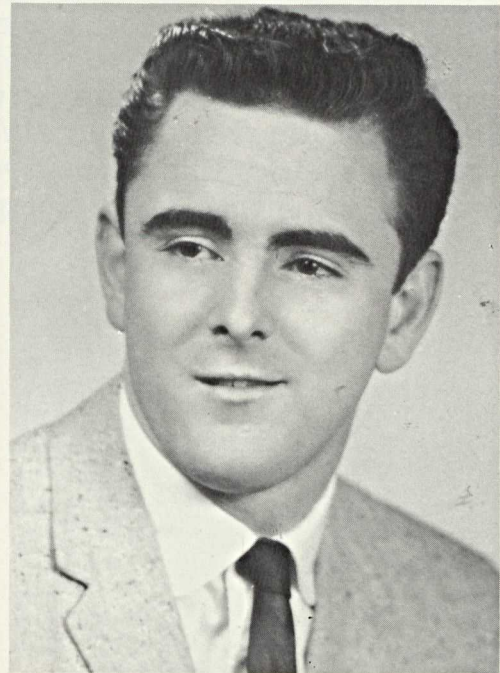


KOSKIMAKI, CARL M.





MARX, WILLIAM P.



WACHTLER, RUDY A.

KOSKIMAKI, CARL M., *Butte, Montana*, Theta Tau, Copper Guards, Sec.-Treas. Junior Class, Chairman Engineering Days, 1965.

MARX, WILLIAM P., *Seattle, Washington*, Theta Tau, M - Club, Varsity Basketball (4 years), Varsity Football (1 year), Intramurals, Viola Vestal Coulter Scholarship, Who's Who in American Colleges and Universities WAAIME Scholarship, Loan Fund, Fee Scholarship, Honor Roll (2 semesters), Delegate to Student Council, Member of Residence Hall Council (Sec.-Treas.), Student Member to Faculty Disciplinary Board.

WACHTLER, RUDY A., *Conneaut, Ohio*, Theta Tau, AIME, Football, Track.

GEOLOGY

THE GEOLOGICAL ENGINEER may work in any phase of human activity dealing with the earth's crust. He is a geologist with an abridged engineering background. When working in petroleum or mineral recovery, he concentrates on development and pro-

duction and to a lesser extent on exploration. In addition, the geological engineer may become a sales representative, a teacher, a research engineer, a professional consultant, or an industrial executive.

Petroleum Geology

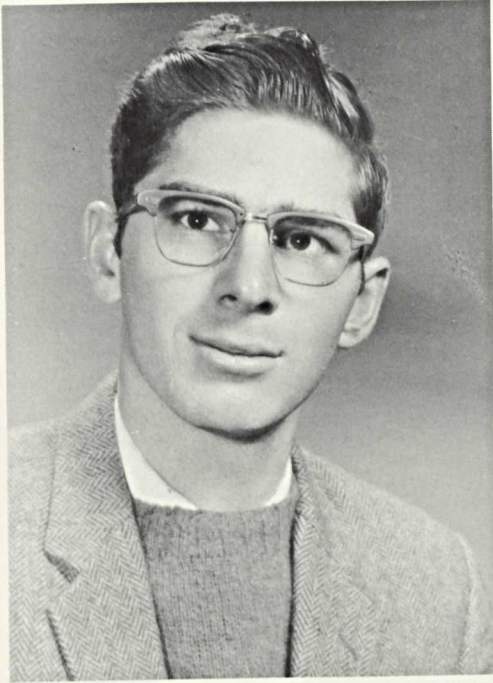


Mining Geology



BLAIR, PAUL L.





HRUSKA, DONALD C.



MAZZA, JAMES A.

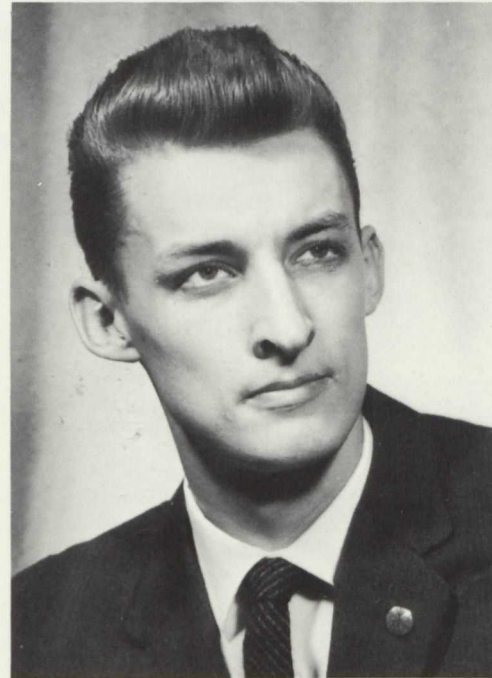
BLAIR, PAUL L., *Oakland, California*, Sigma Rho, AIME.

HRUSKA, DONALD C., *Lutherville, Maryland*, Mineral Club, Band, Glee Club, Intramurals, Honor Roll (1 semester), Who's Who in American Colleges and Universities.

MAZZA, JAMES A., *Chicopee, Massachusetts*, M-Club, AIME, Varsity Football (1 year), Intramurals, President Sophomore Class, Vice-President Senior Class, Gino Diamanti Scholarship (2 years).



PACHAS, FRANK

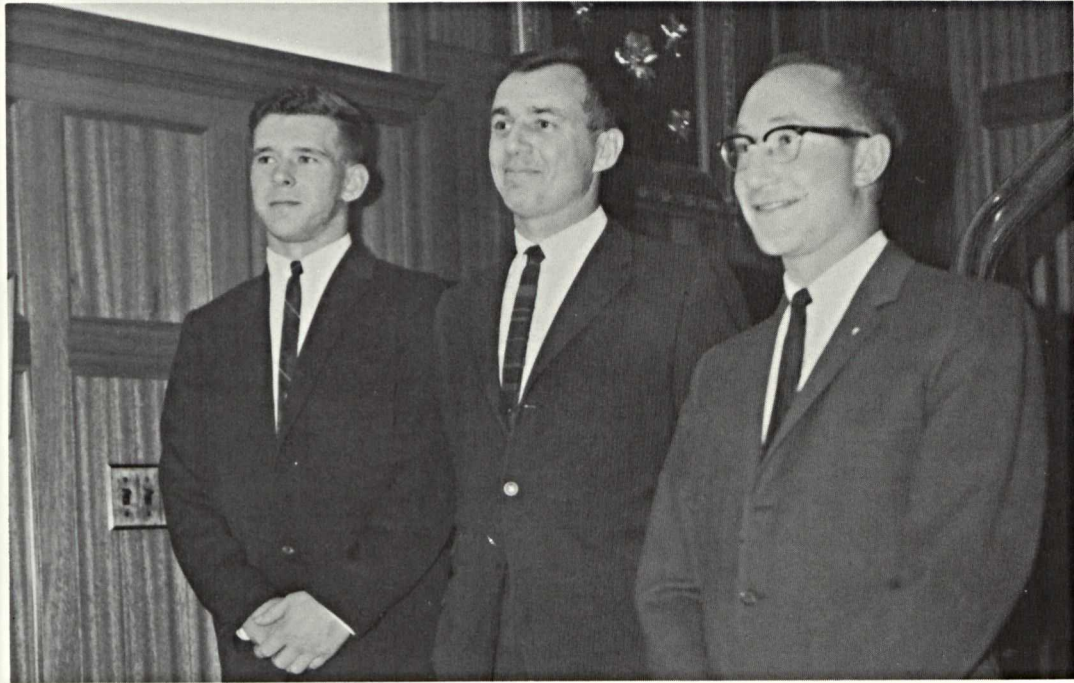


YDE, HAROLD F.

PACHAS, FRANK O., *Lima, Peru*, Sigma Rho, AIME, Economic Geology Society, Newman Club, International Club (President), Intramural (Basketball), Track, Honor Roll (1 Semester), AIME Scholarship Loan (2 years).

YDE, HAROLD F., *Brainerd, Minnesota*, AIME, Intramural (Volleyball), Ski-Club, Assistant Director Pep Band, Brainerd Jr. College Lettermans Club, University of Minnesota Marching Band.

METALLURGY

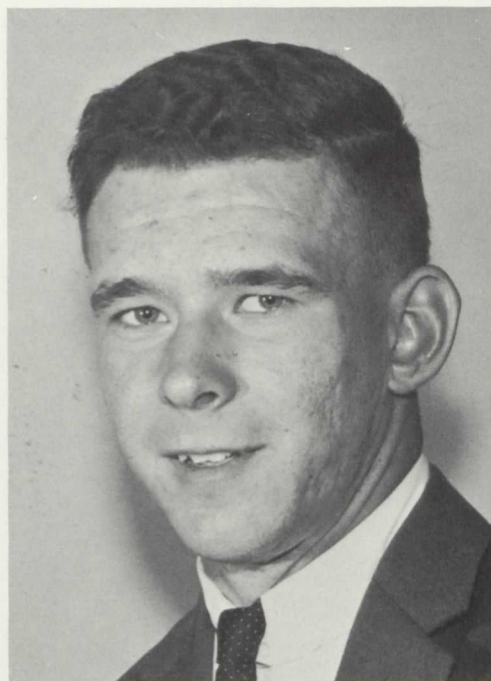


THE METALLURGICAL ENGINEER is responsible for the materials of modern technology. Generally, but not exclusively, this means metallic materials. Such an engineer has responsibilities ranging from extraction of metals from ores through production of finished products to research and development on new or old applications of

metals and alloys. The *Materials Engineer* deals with the general field of materials, be they metallic, plastic, ceramic, rubber or whatever. He is responsible for ensuring that a given product or component is fabricated from the most suitable material irrespective of its nature.



PODOBNIK, DONALD M.



TOIVONEN, ROBERT W.

PODOBNIK, DONALD W., *Anaconda, Montana*, Sigma Rho, ASM, AIME, Intramural (Basketball), Chairman of ASM, Vice-Pres. Met. Section of AIME, Vice-Pres. of Jr. Class, Secretary and Archon of Sigma Rho.

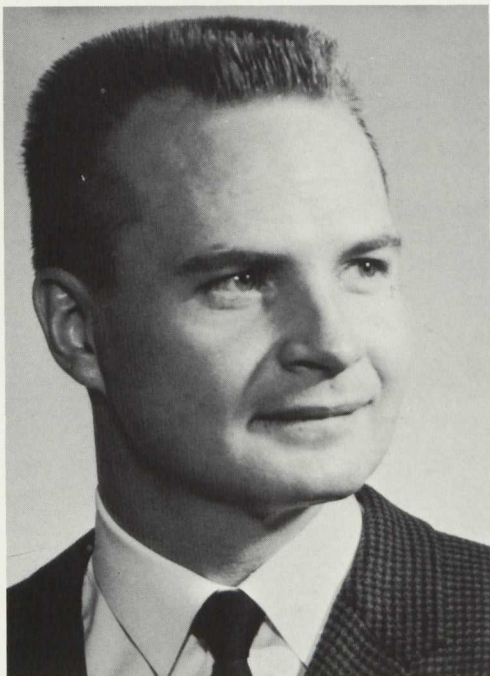
TOIVONEN, ROBERT W., *Butte, Montana*, Sigma Rho, AIME, ASM, Pep Band, Pres. Student Council, Intramural (Basketball) and (Baseball), Honor Roll (3 semesters), MSM Scholarship, Federation of Women's Club Scholarship.

MINERAL DRESSING



THE MINERAL DRESSING ENGINEER is concerned with the separation, transformation, and marketing of mineral and metal substances. He applies physical,

physio-chemical, and even nuclear sciences to obtain mineral and metal substances in desired purity for use directly or as alloyed with other metals.



EK, JAMES A.



GALARRETA, VICTOR M.



HIGINBOTHAM, SAMUEL L.

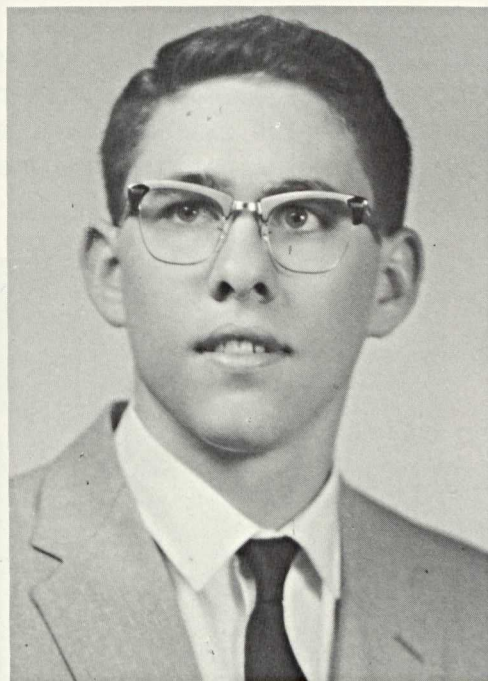


JENKS, JAMES F.

EK, JAMES A., *Fort William, Ontario*, Sigma Rho, AIME, International Club (Pres. and Vice-Pres.), Treasurer Senior Class, Editor Magma, Intramural (Volleyball), Graduate in Mining Technology from Provincial Institute of Mining, Haileyburg, Ontario.



PAREKH, LALIT K.



STALLINGS, MANLEY K.

GALARRETA, VICTOR M., *La Libertad, Peru*, Colegio National de Inge Ingenieros de Minas, Argentina, International Club, Mining Engineering degree (University of Cuyo, Argentina).

HIGINBOTHAM, SAMUEL L., *New Oxford, Pennsylvania*, Sigma Rho, International Club, Photo Club, Mineral Club, Copper Guard, AIME, ASM, Glee Club, Manager for football and basketball.

JENKS, JAMES F., *Deer Lodge, Montana*, Sigma Rho, Copper Guards, Vice-Pres. of Junior Class, AIME, Vice-Archon of Sigma Rho.

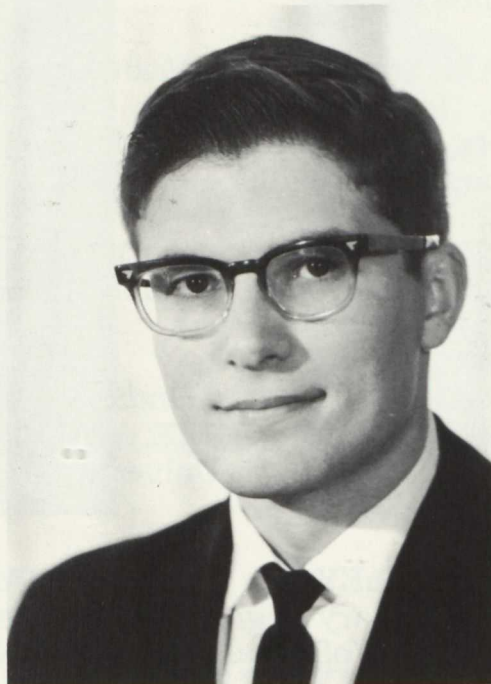
PAREKH, LALIT K., *Bombay, India*, International Club, Mineral Club, Photo Club, AIME, ASM, American Chemical Society B.S. Chemistry, University of Bombay, B.S. Metallurgical Eng. M.S.M.

STALLINGS, MANLEY K., *Anaconda, Montana*, Sigma Rho, AIME, Secretary-Sigma Rho, Treasurer of Sigma Rho, Intramural Volleyball, Honor Roll-1 semester.

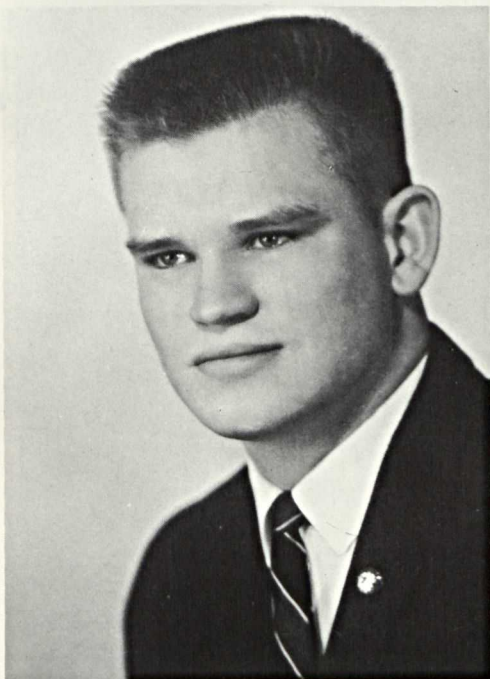
MINING

THE MINING ENGINEER is charged with the duty of providing man with raw materials needed for his existence and well being. He is responsible for designing and

directing the process of ore removal from the ground for its use by raw materials processors.



EATON, LAWRENCE R.



HYYPPA, RAYMOND R.



ZACCA, RAIF M.

EATON, LAWRENCE R., *Granada Hills, California*, Secretary-Treasurer, AIME.

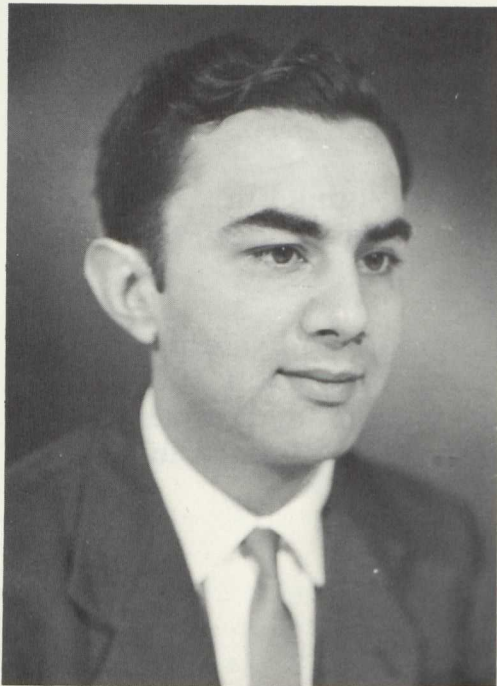
HYYPPA, RAYMOND R., *Butte, Montana*, Sigma Rho, Duke of Copper Guard, Vice-Pres., Junior Class, Vice-Pres., AIME, Mining Section, ASM.

ZACCA, RAIF M., *Beirut, Lebanon*, Sigma Rho Fraternity, International Club, AIME, Ping-pong Champion 1962, Tennis, Intramural basketball and volleyball, President of International Club, Treasurer of International Club.

PETROLEUM

THE PETROLEUM ENGINEER'S responsibilities are primarily in the production phases of the oil industry. This includes the drilling of oil wells and the selection of the proper rig for size and capacity, the choice

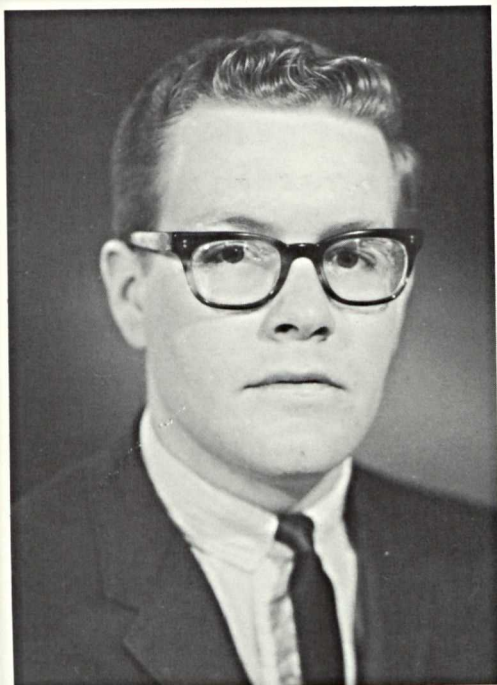
and recommendation of oil and gas well completion practices and procedures and the interpretation of the results of geophysical exploration.



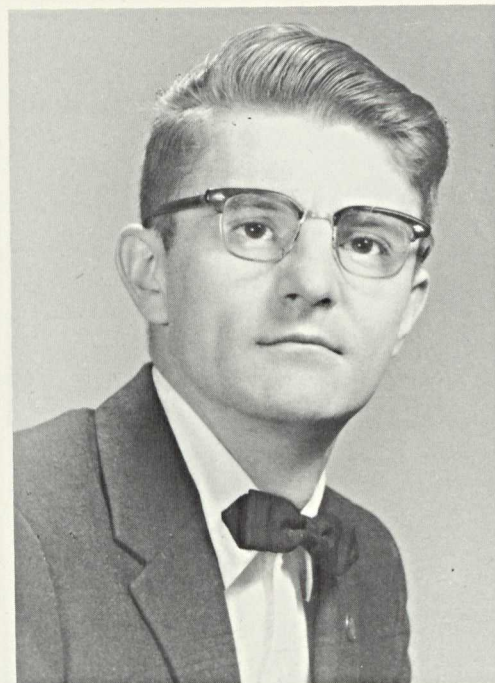
AWAN, MANSOOR A.



BURK, JOHN Y.



BUSENIUS, WALTER A., JR.



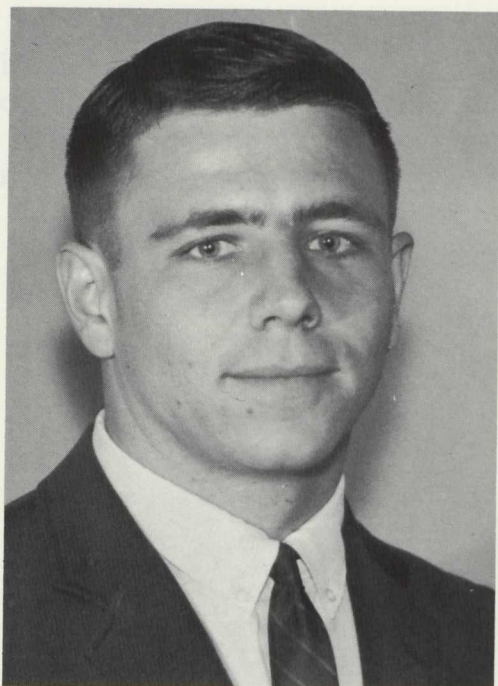
CHAKY, ALEXANDER

AWAN, MONSOOR A., *Quetta, Pakistan*, Recorder Copper Guards, Vice-Archon Sigma Rho Fraternity, Pres. International Club, Pres. Senior Class, Honor Roll-5 semesters, M.S.M. Scholarship, Who's Who Among Students in American Universities.

BURK, JOHN Y., *Glen, Montana*, Theta Tau Fraternity, AIME, M-Club, Football, Track, Intramural Sports, Freshman Scholarship.

BUSENIUS, WALTER A., JR., *Baltimore, Maryland*, AIME, Sigma Rho Fraternity, Intramurals, Varsity Baseball.

CHAKY, ALEXANDER, *New Westminster, B.C.*, AIME, Canadian Institute of Mining, E.I.T. (Prof. Eng. of British Columbia), Sigma Rho Fraternity, Baseball, Hockey, B.S. Geological Engineering (Pet. Option) Mont. Sch. of Mines, 1962.



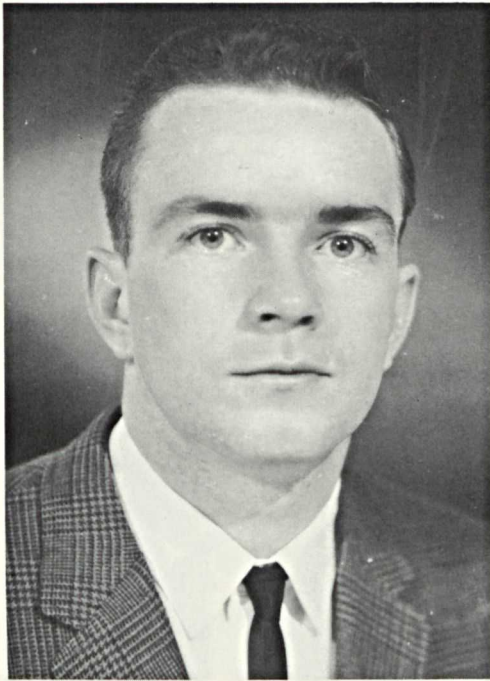
EVANS, JOHN G. III



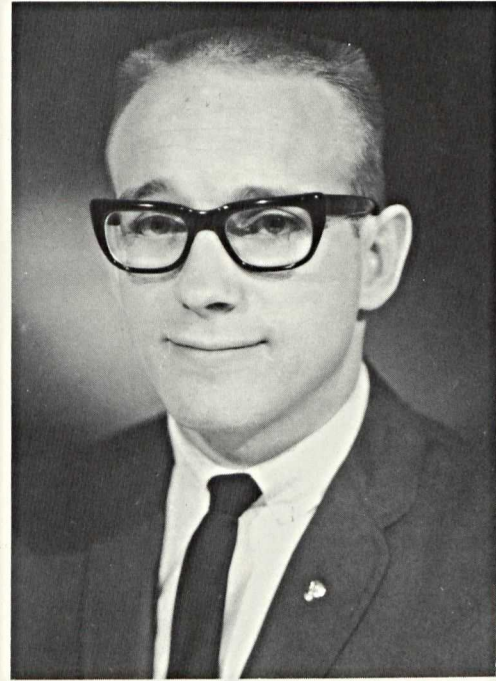
KANDLE, JOSEPH R.

EVANS, JOHN G. III, *Butte, Montana*, Theta Tau Fraternity, AIME, Student Body President, M-Club President, Amplifier Editor, Football, Basketball, Honor Roll, Billings Section of the AIME Scholarship, Who's Who among students in American Universities.

KANDLE, JOSEPH R., *Salem, New Jersey*, AIME, Sigma Rho Fraternity (scribe & secretary), Intramural Softball, MSM Freshman Scholarship, Honor Roll 1 semester, MSM Advanced Scholarship.



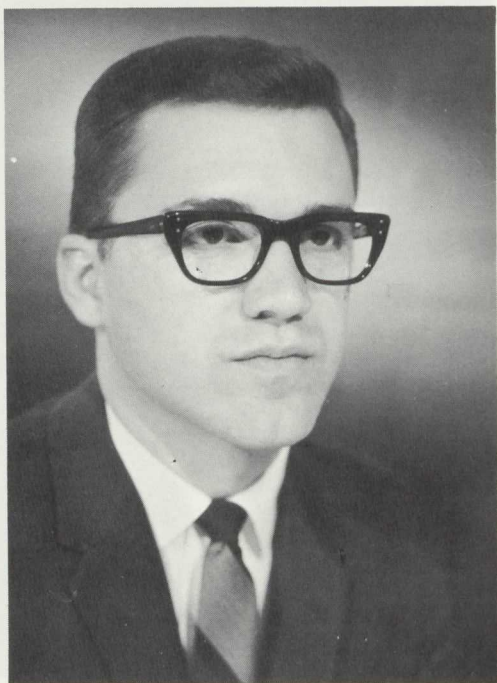
MADISON, WILLIAM F.



PETERSON, CURTIS K.

MADISON, WILLIAM F., *Missoula, Montana*, Theta Tau Fraternity, Newman Club, AIME, Pres.--M Club, Delegate--Student Council, Intramurals, Varsity Football--4 years, Rotary Club Scholarship, All Conference Football.

PETERSON, CURTIS K., *Butte, Montana*, Theta Tau--Scribe, AIME, Copper Guards, Pres.--Freshman and Junior Classes, M-Club--Vice President, Secretary-Treasurer,--Student Council, Circle K--Treasurer, Track 4 years, Football--3 years, Intramurals, Freshman Fee Scholarship, Advanced Fee Scholarship, Cobb Foundation Scholarship, Who's Who Among Students in American Universities.



SIMONICH, EDWARD L.



TYNER, KEITH E.

SIMONICH, EDWARD L., *Butte, Montana*, Soph. Class President, Vice Pres. Student Council, Delegate--Student Council, Sec.-Treas. M-Club, Corresponding Sec. Theta Tau, Pres. Copper Guards, AIME, Newman Club, Circle K Club, Varsity Football--4 yrs., All-Conference--2 yrs., Intramurals; Socony-Mobil Oil Co. Scholarship--2 yrs., Freshman Honor Scholarship, Advanced Fee Scholarship, Who's Who Among Students in American Universities, Honor Roll--8 semesters.

TYNER, KEITH E., *Conrad, Montana*, Copper Guards, Theta Tau, Amplifier, Magma, Vice Pres. Petroleum Section AIME, Intramurals.



WEAVER, JACK L.



YLITALO, RODNEY W.

WEAVER, JACK L., *Trident, Montana*, Theta Tau-Vice Regent, President-Freshman Class, M-Club, AIME, Magma, Varsity Basketball 2 yrs., All-Conference Intramurals, Continental Oil Co. Scholarship, Honor Roll 4 semesters, Who's Who Among Students in American Colleges & Universities, Manager of S.U.B. (2 yrs.), Representative to Disciplinary Committee.

YLITALO, RODNEY W., *Wolf Lake, Minnesota*, Sigma Rho Fraternity, M-Club, AIME, Secretary-Senior Class, Basketball, Intramural Sports.

HIGHLIGHTS



Processional

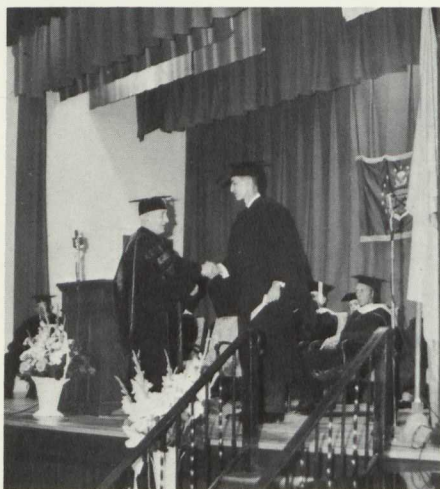


Invocation

Commencement
Address



Conferring of Degrees



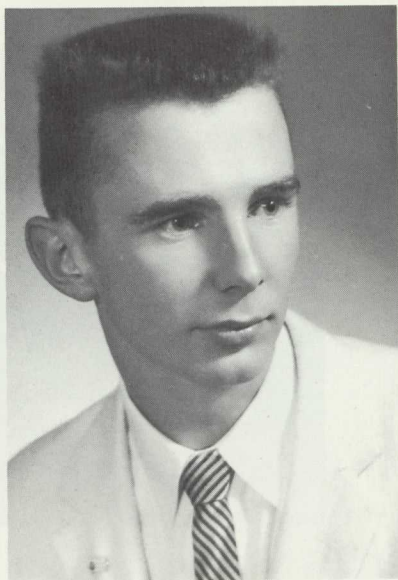
Reception

JUNIORS

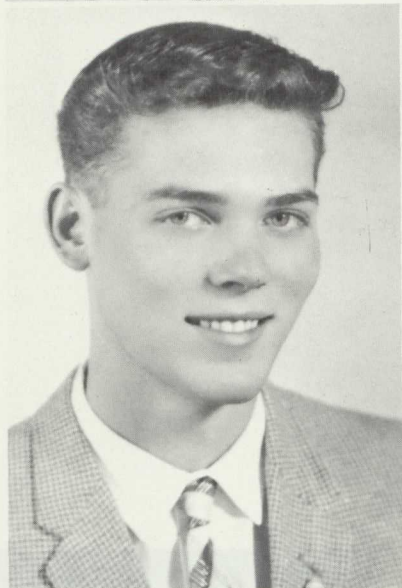


Q WORCESTER

HIGHLIGHTS

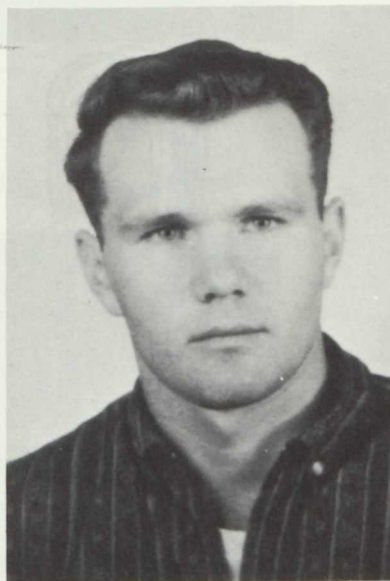


Joe Bates
Anaconda, Montana

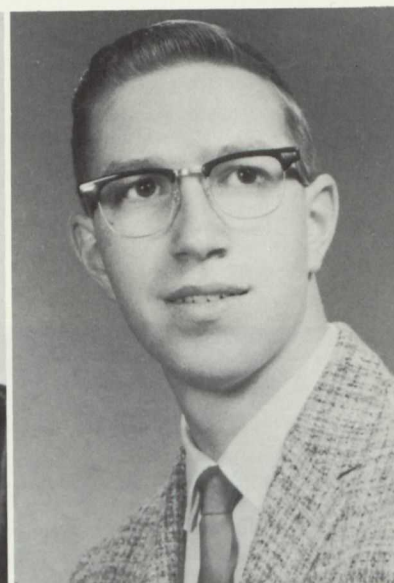


George Barker
Flin Flon, Manitoba

Russell Bills
Upland, California



Harry Bolster
Butte, Montana



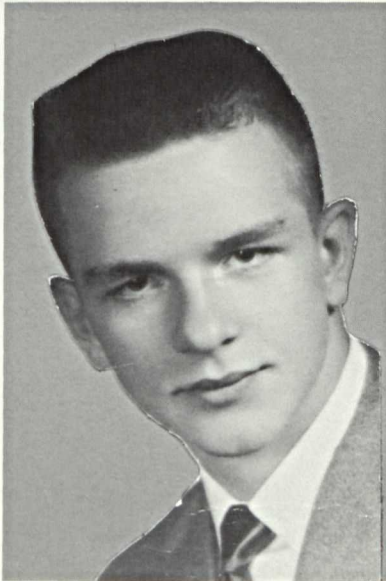
Joseph Caddy
Butte, Montana

Mike Duran
Butte, Montana



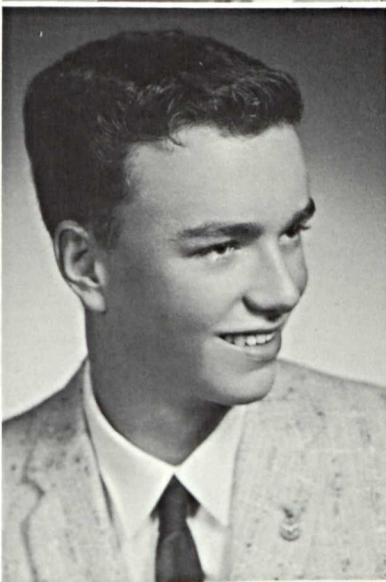
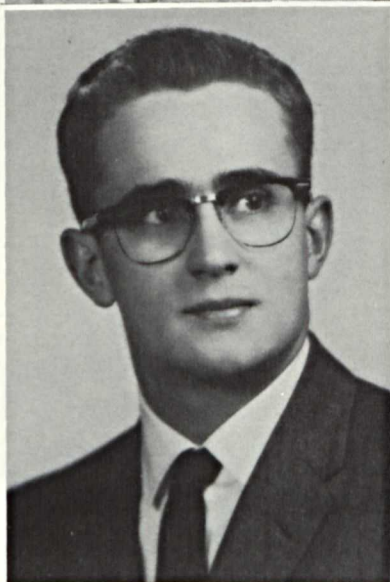


THE JUNIOR CLASS OFFICERS ARE: John Koger, Vice-President; Bill Thompson, President; Bob Frantz, Sec'y-Treas.



Robert Frantz
Butte, Montana

Jim Furas
Anaconda, Montana

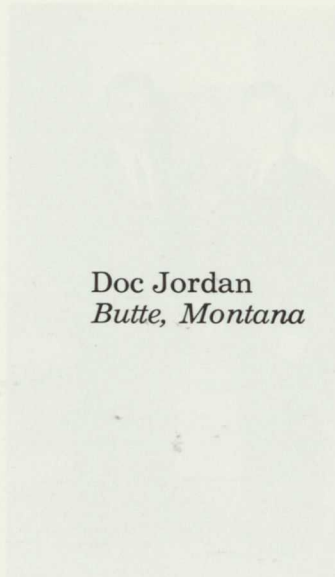


Howard Forsythe
Gardiner, Montana

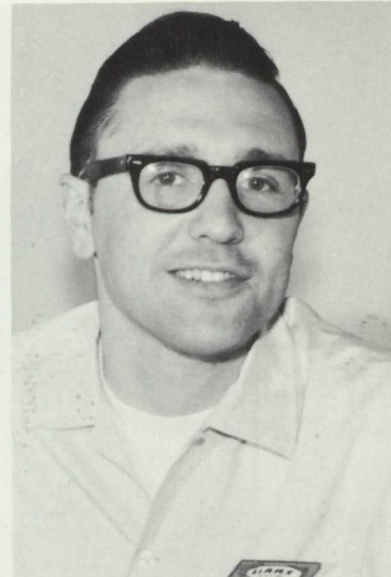
Bob Heaphy
Anaconda, Montana



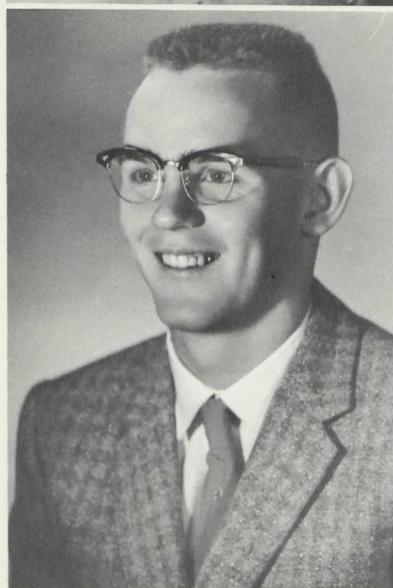
Delores Labranche
Butte, Montana



Doc Jordan
Butte, Montana



Paulette Kankelborg
Butte, Montana



Dexter Leonard
Anaconda, Montana

Eldon Lindstrom
Anaconda, Montana



John Koger
Fort Shaw, Montana

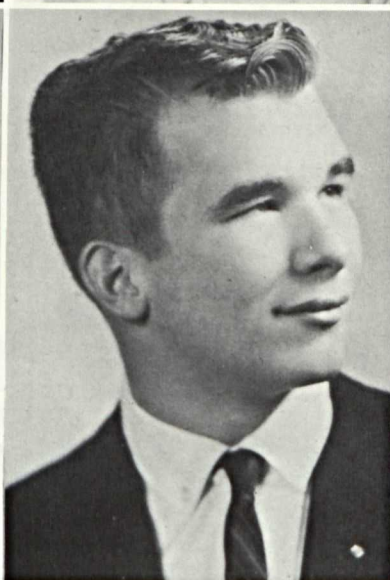
William MacFarlane
Havre, Montana





Stanley Miller
Butte, Montana

Jeannine Stallings
Butte, Montana

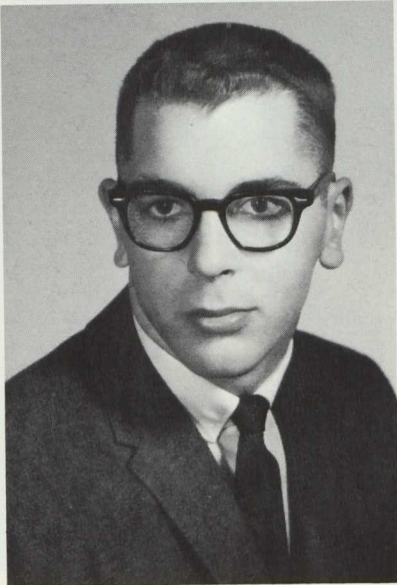


Norman Stone
Anaconda, Montana

Daniel Stowe
Helena, Montana



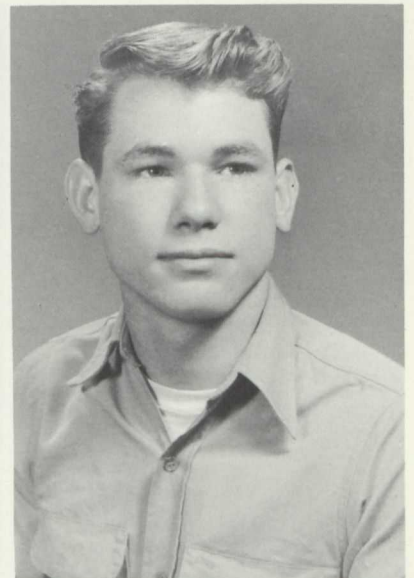
Carl Swanson
Anaconda, Montana



Kent Taylor
Kalispell, Montana



Bill Thompson
Keremeos, B. C.



Jim Vincelette
Billings, Montana

Tim Wood
Glendive, Montana



SOPHOMORES



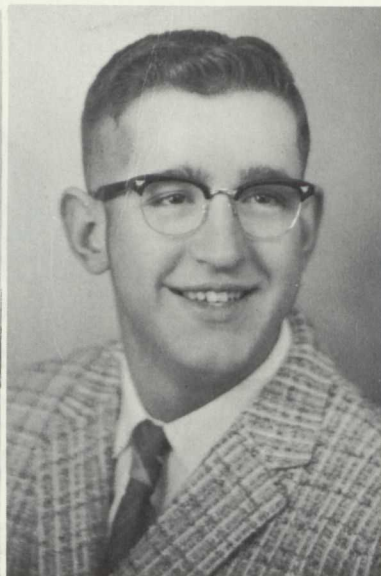


Robert Balhiser
Great Falls, Montana

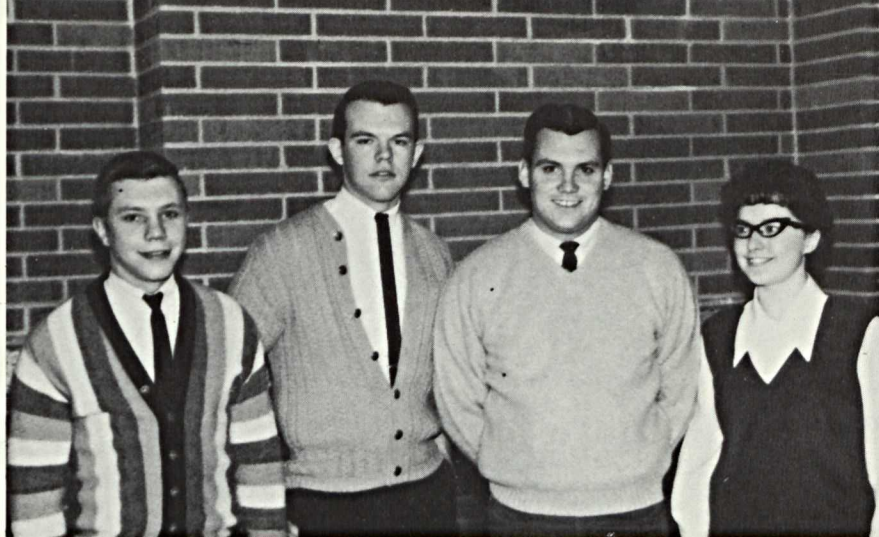
Cathy Burke
Butte, Montana

William Chebul
Butte, Montana

Arthur Clarkson
Helena, Montana



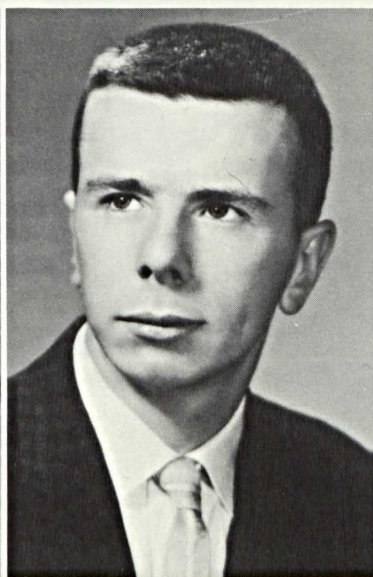
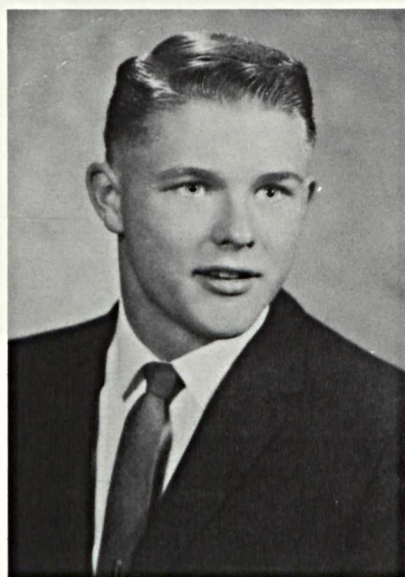
Al Chiamulera
Butte, Montana



THE SOPHOMORE CLASS OFFICERS ARE: Mike Lewis, Vice-President; Tom Semmons, Treasurer; Bill Robinson, President; Mary Jean Ungaretti, Secretary.



Brooks Coombe
Butte, Montana



Steve Denton
*Deer Lodge,
Montana*

Sheila Dorgan
Butte, Montana

Gary Dunford
Butte, Montana

Jerrell Fleming
Anaconda, Montana



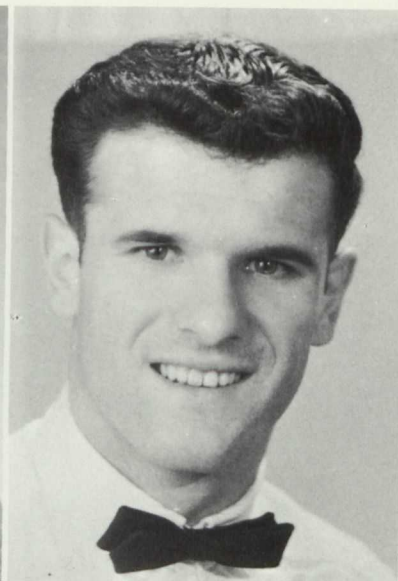


Annette Fraser
Butte, Montana

Mike Fredrickson
Butte, Montana

Chris Gale
Melrose, Montana

John Giacomino
Walkerville,
Montana



Will Goldberg
Butte, Montana

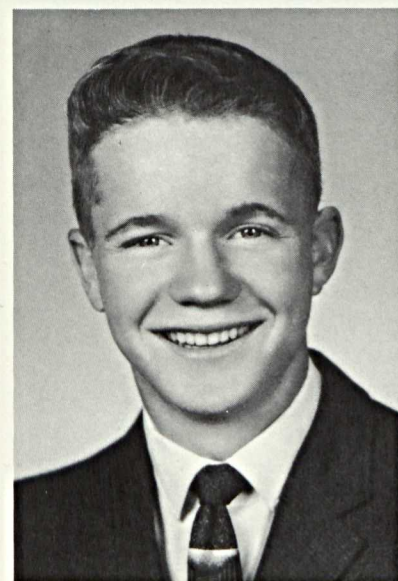


Ellen Hurlbut
Butte, Montana

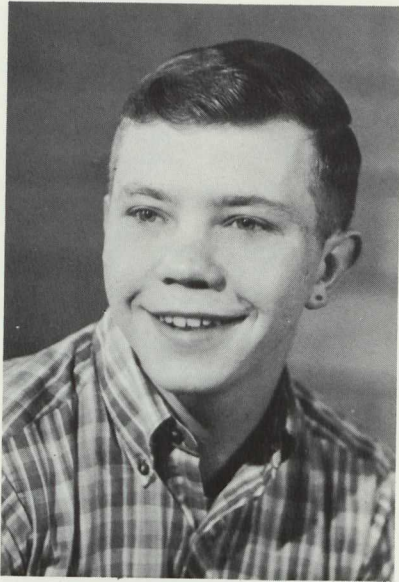


William Immonen
Walkerville, Montana

Thomas Layton
Anaconda, Montana



Bob Lehfeltdt
Lavina, Montana

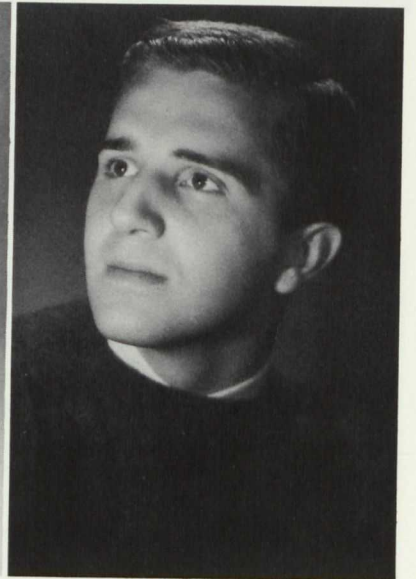
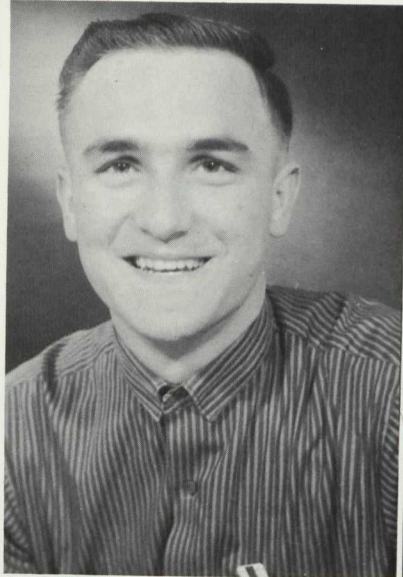


Mike Lewis
Butte, Montana

James Loomis
Butte, Montana

Ronald Massey
*Anaconda,
Montana*

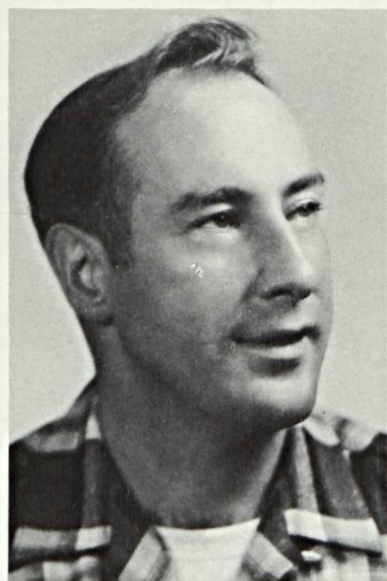
Bob Mateleska
Binghamton, N.Y.



Charlotte Matthews
Butte, Montana



Jane McCarthy
Butte, Montana



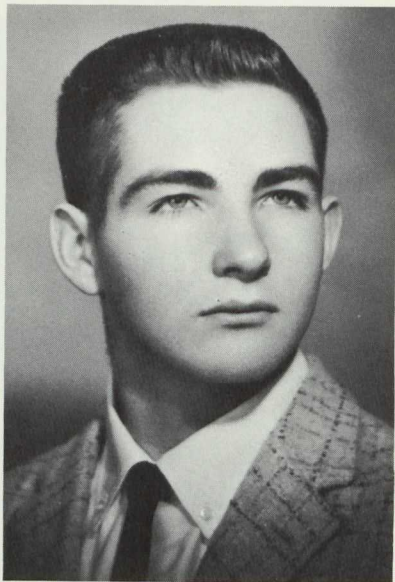
Carl McCallum
Butte, Montana

Carol Melvin
Butte, Montana

Ann Mullany
Butte, Montana

Katherine O'Connell
Butte, Montana



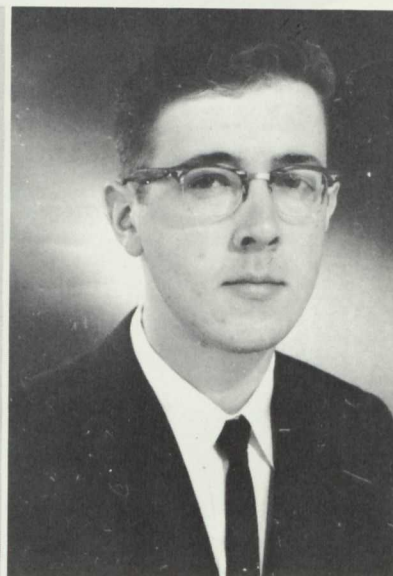
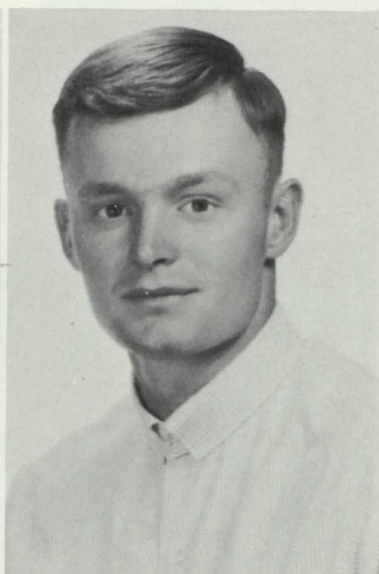
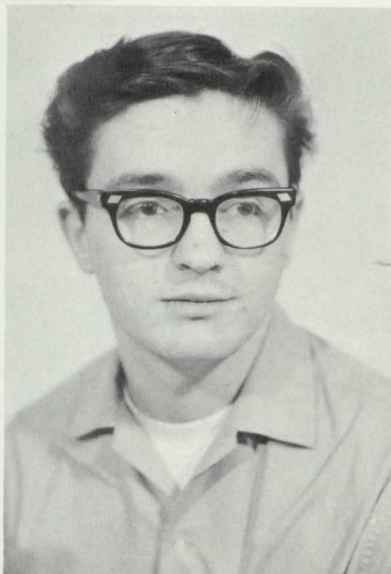


Edward Panisko
Butte, Montana

Charles Parrett
Butte, Montana

Barton Penny
Edmonton, Wash.

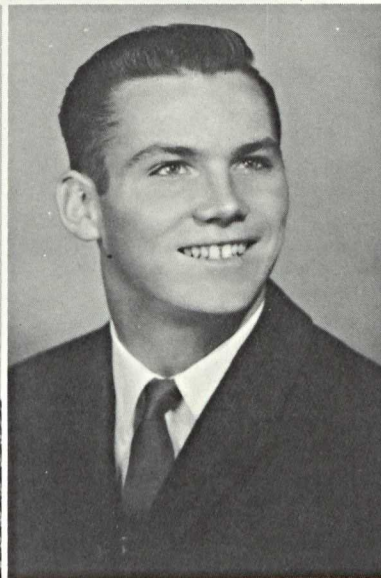
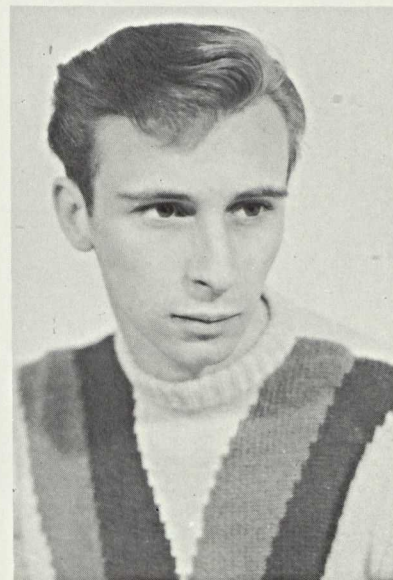
Wayne Peterson
Butte, Montana



Diane Platt
Butte, Montana



Bob Ramsey
Butte, Montana



Jerry Rau
Butte, Montana

William Reed
*Cut Bank,
Montana*

Bill Robinson
Butte, Montana



James Rose
*Saskatoon, Sask.,
Canada*



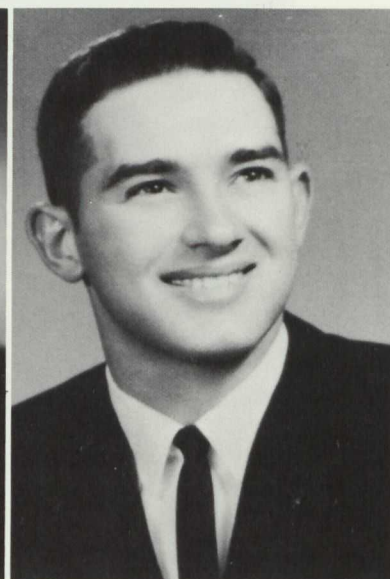
Sandra Salovich
Butte, Montana



Randy Scharf
Butte, Montana

Henry Scholz
Vancouver, B. C.

Bobby Seidel
Huntley, Montana

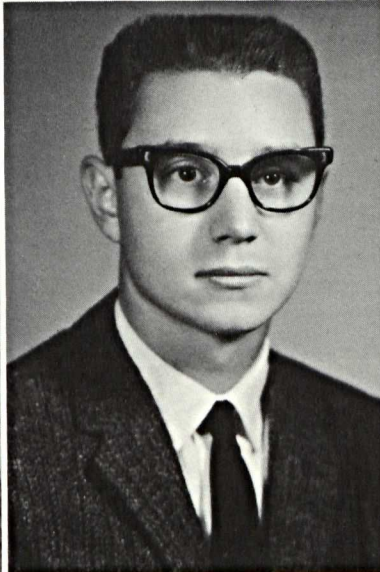
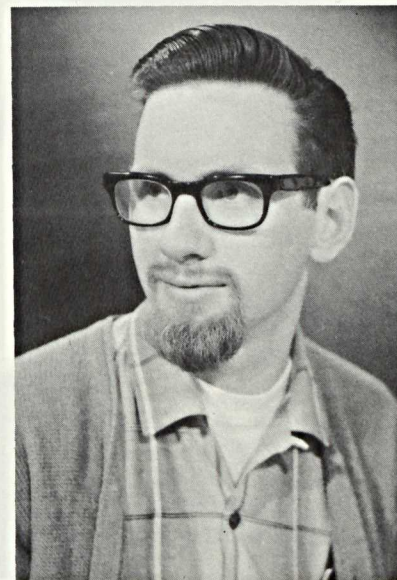


Doreen Shea
Butte, Montana





Joe Sheehan
Butte, Montana



Jonathan Smith
Butte, Montana

Carolyn Stuart
Butte, Montana

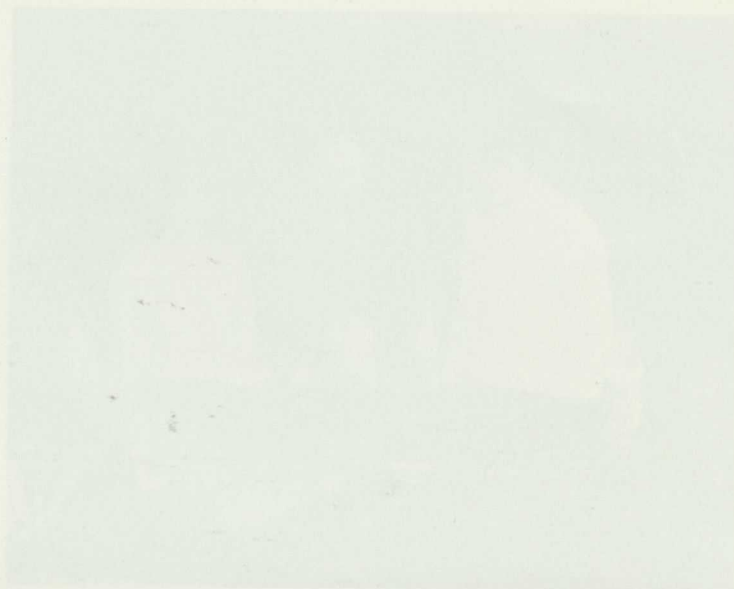
Lee Tedesco
*Miles City,
Montana*



Kendell Tholstrom
Anaconda, Montana



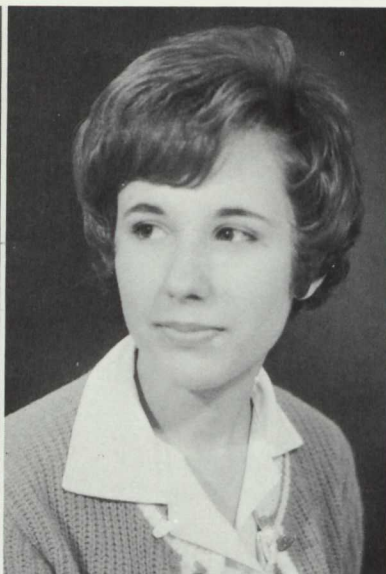
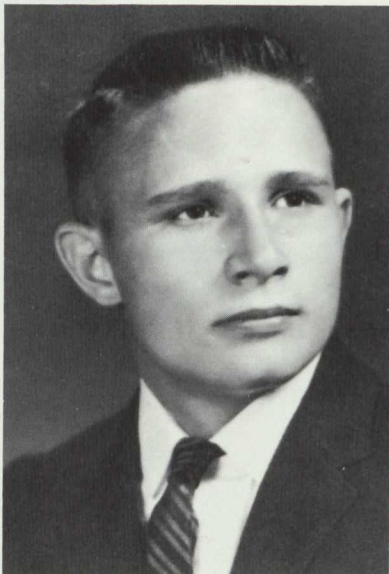
Willy Thomas
Butte, Montana



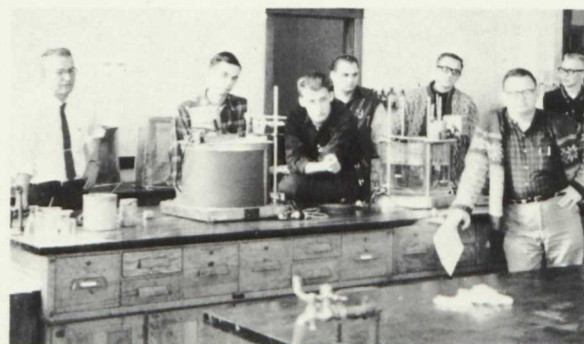
Mike Thompson
Butte, Montana

George Ann
Thurston
Butte, Montana

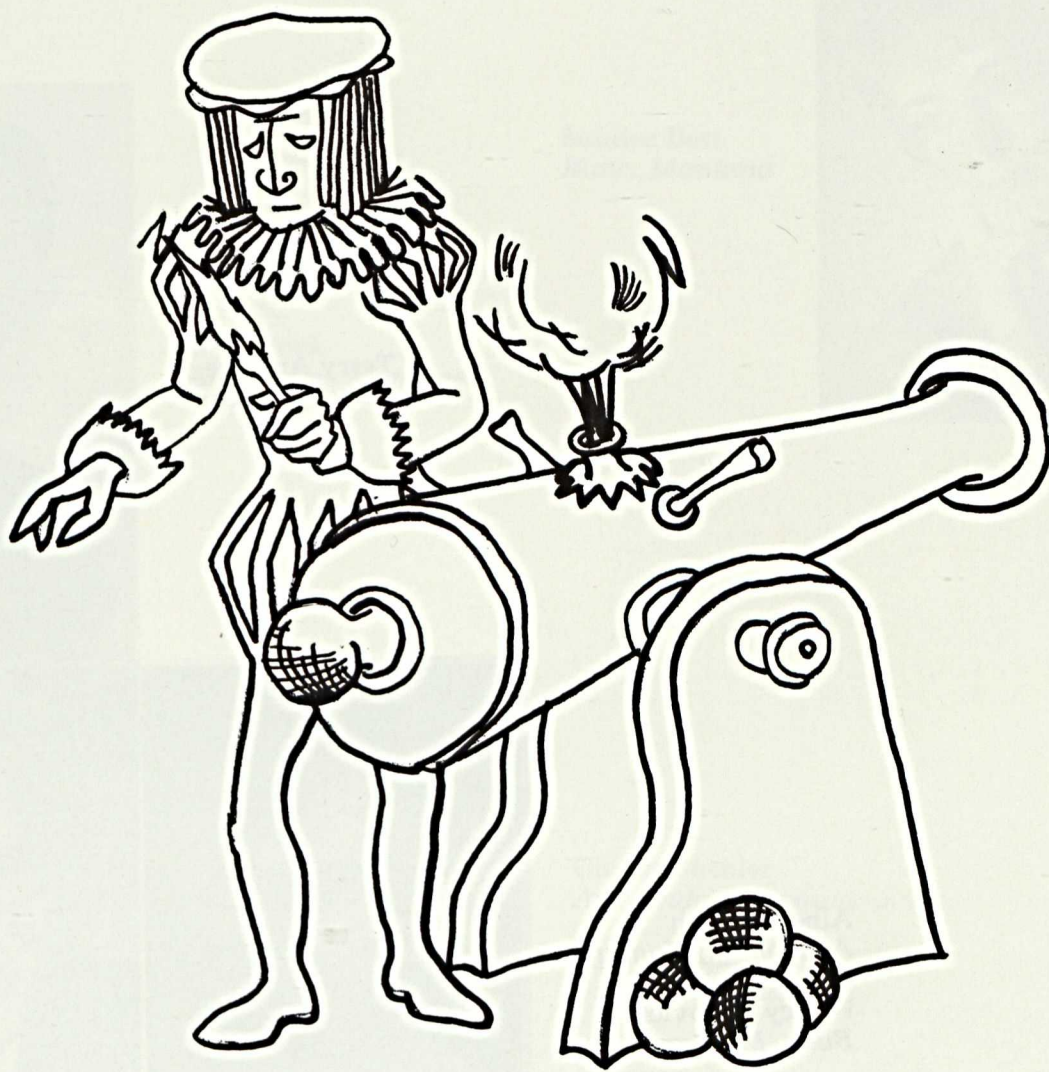
Mary J.
Ungaretti
Anaconda,
Montana



Kathy Verona
Butte, Montana



FRESHMEN





THE FRESHMAN CLASS OFFICERS ARE: Marcella Burke, Sec'y-Treas.; Don Brunell, President; Charles Ljungberg, Vice-President.

Terry Angove
Butte, Montana



Albert Arvish
Anaconda, Montana

Nancy Bajovich
Butte, Montana



Ben Barone
Anaconda, Montana

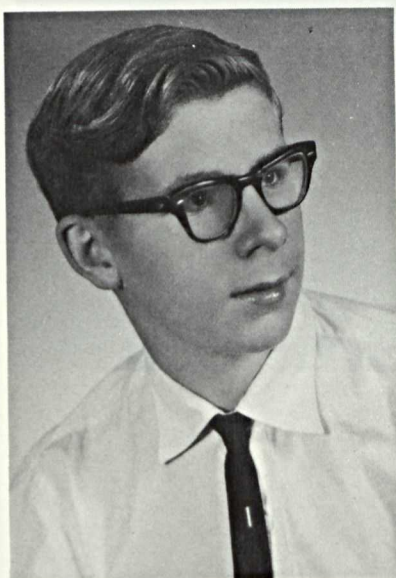
Creighton Barry
Butte, Montana



Sandee Best
Butte, Montana



Dale Bock
Anaconda, Montana



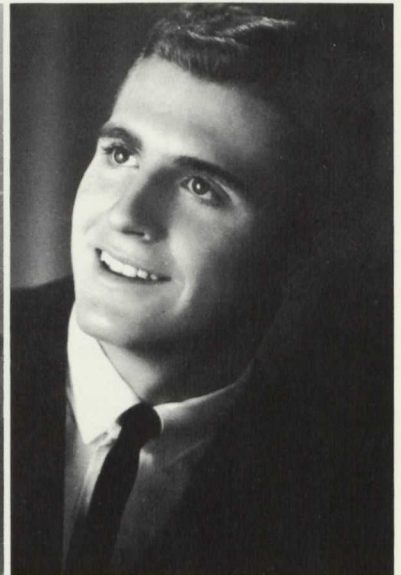
Cherie Boehler
Anaconda, Montana

Judy Boundy
Butte, Montana



Joan Britton
Butte, Montana

Don Brunell
Walkerville, Montana



Anthony Buralli
Anaconda, Montana



Gary Carlson
Anaconda, Montana



Albert Chamberlain
Ramsey, Montana

David Cohen
Butte, Montana

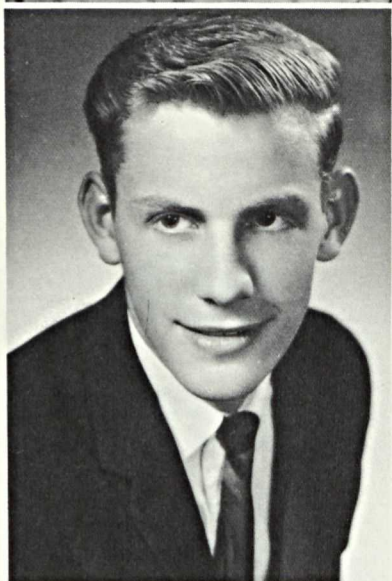




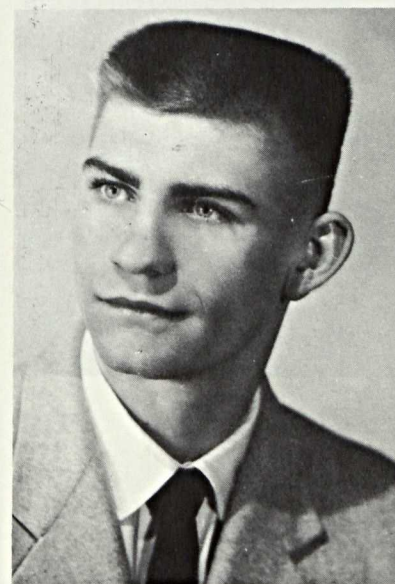
Stanley Colenso
Butte, Montana



Norman DeNeal
Butte, Montana



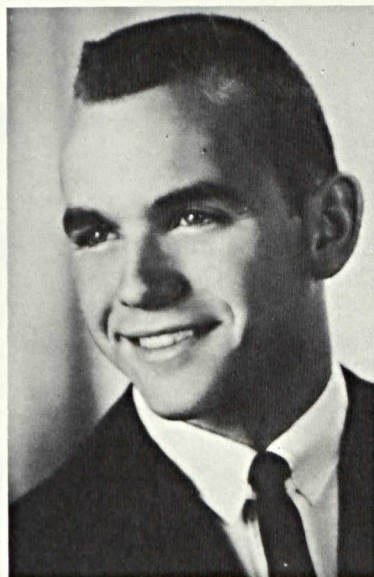
John Domitrovich
Anaconda, Montana



John Eaton
Butte, Montana

Van Elrod
Butte, Montana

Carole Fanning
Butte, Montana





Fran Ferris
Butte, Montana

Joe Franey
Butte, Montana



Gene Galovic
Butte, Montana

Adam Gerle
Butte, Montana



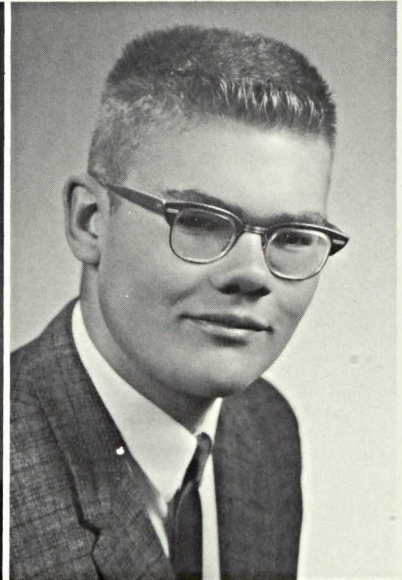
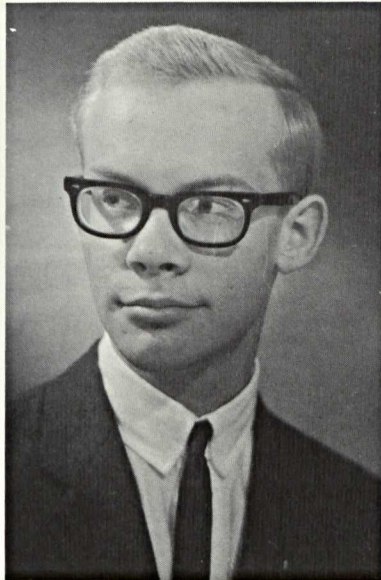
Elmer Goodman
Cincinnati, Ohio

Tom Hamaker
Butte, Montana



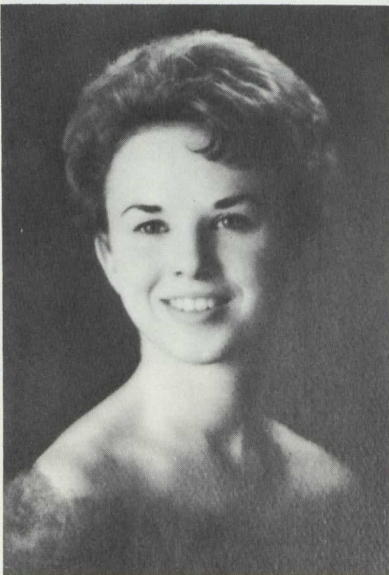
Norman Hanpa
Butte, Montana

Clint Hardtla
Anaconda, Montana



Edwin Haskin
Butte, Montana

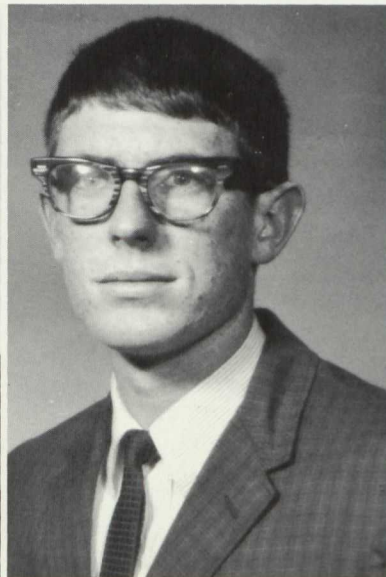




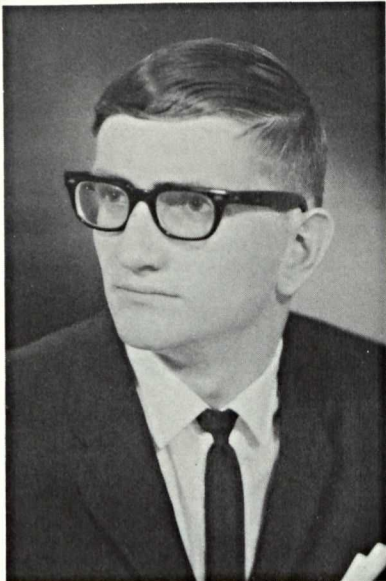
Carma Lee Hodges
Butte, Montana



Henry Hoellein
Butte, Montana



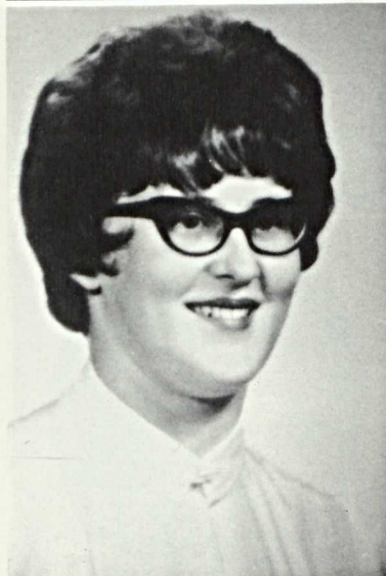
Joe Holland
Suttland, Maryland



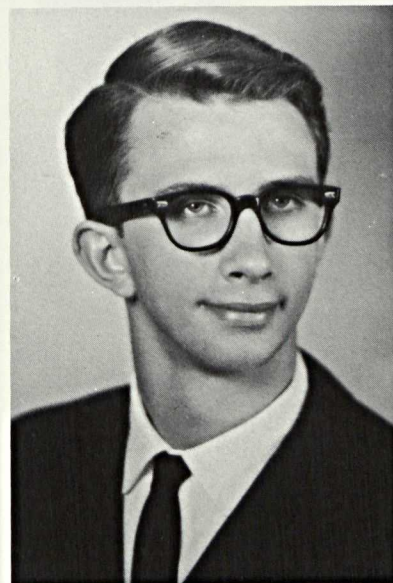
Mark Johnson
Butte, Montana



Gary Kargacin
Anaconda, Montana



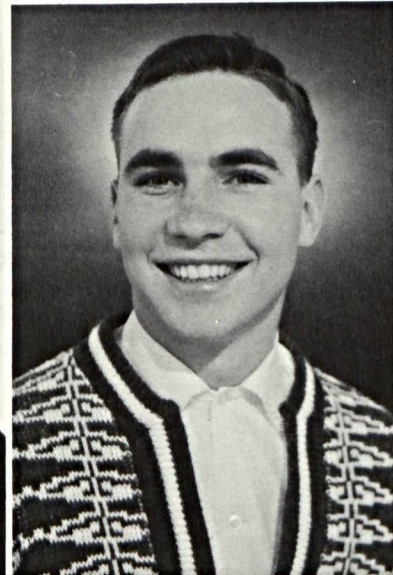
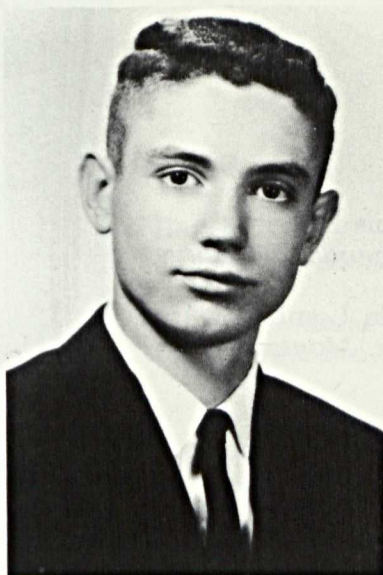
Suzanne Kephart
Butte, Montana



Pat Kramarich
Butte, Montana

Tom Laity
Butte, Montana

Jim Leifer
St. John, Washington





Astrid Maloney
Butte, Montana



Russell Lewis
Walkerville, Montana



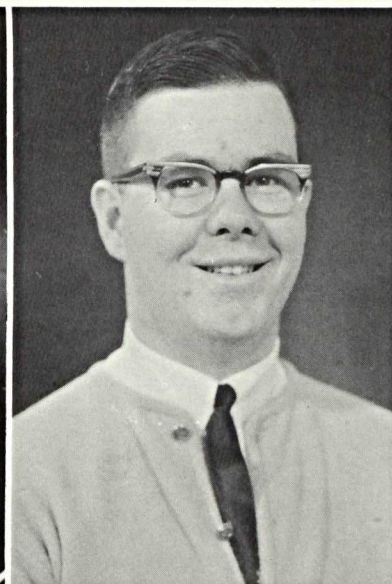
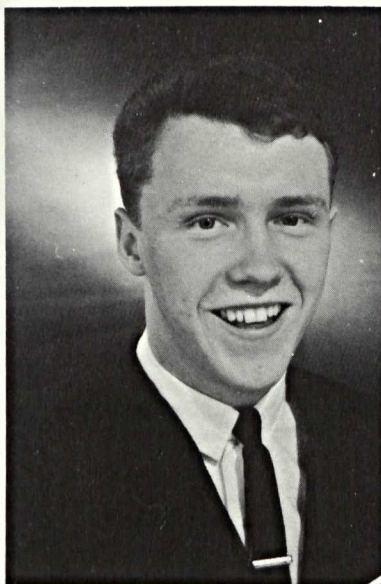
Dennis Lodell
Anaconda, Montana

Linda Lombardi
Butte, Montana



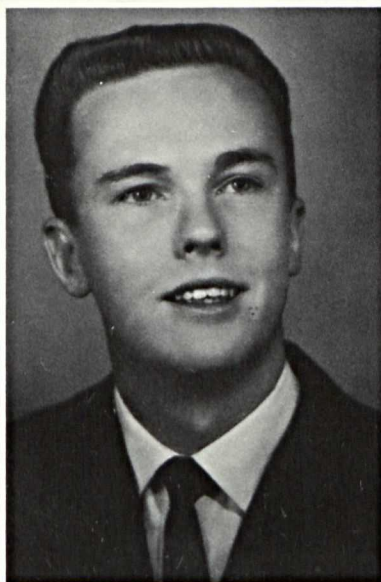
Darryl Mackey
Butte, Montana

Francis McGarry
Butte, Montana



Mary McGrath
Butte, Montana

Marjorie McGarry
Butte, Montana

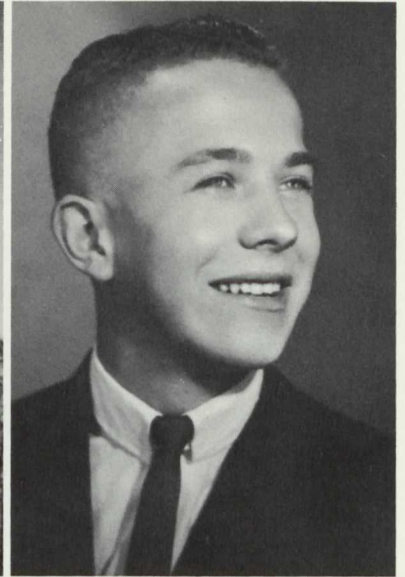


Ray Miotke
Silver Star, Montana

Bill Mulholland
Butte, Montana

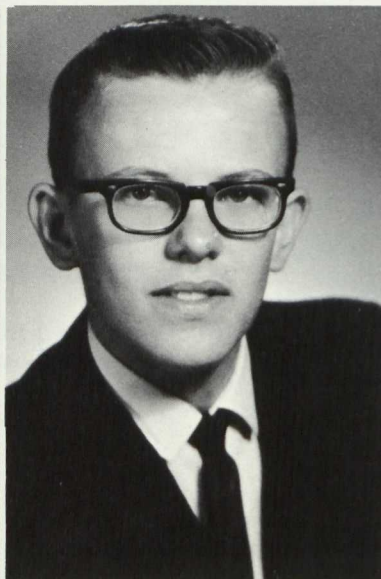
Lawrence Nelson
Butte, Montana

George Nolan
Butte, Montana



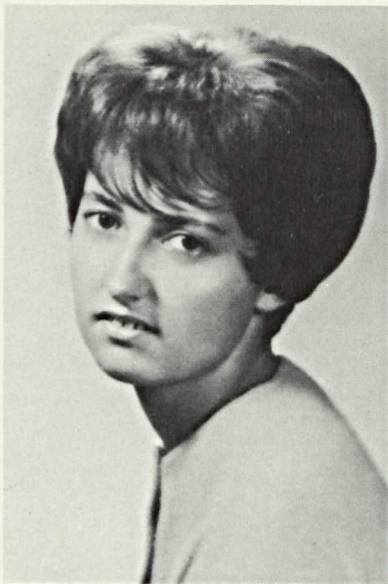
Ed Nordquist
Anaconda, Montana

Bob Norine
Butte, Montana



Linda O'Neil
Butte, Montana

Dan Piazzola
Whitehall, Montana



Claudia Reindl
Butte, Montana



Jeanine Richards
Butte, Montana



Rena Richards
Butte, Montana



Betty Richardson
Butte, Montana

Pat Richardson
Butte, Montana

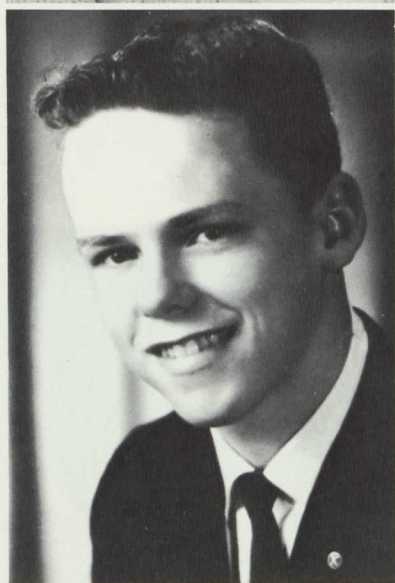
Jim Rolando
Butte, Montana





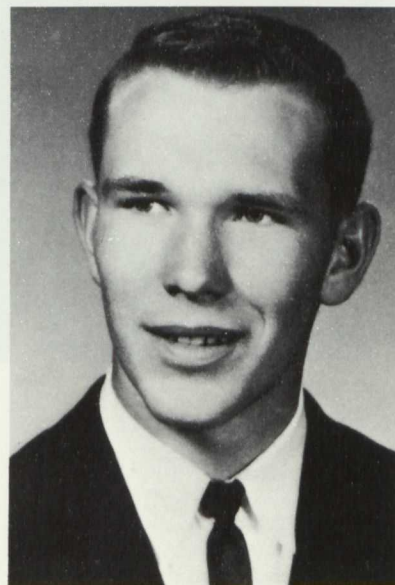
Laurel Rosich
Butte, Montana

Mary Lou Rule
Butte, Montana



Dick Rule
Butte, Montana

Steve Sands
Butte, Montana



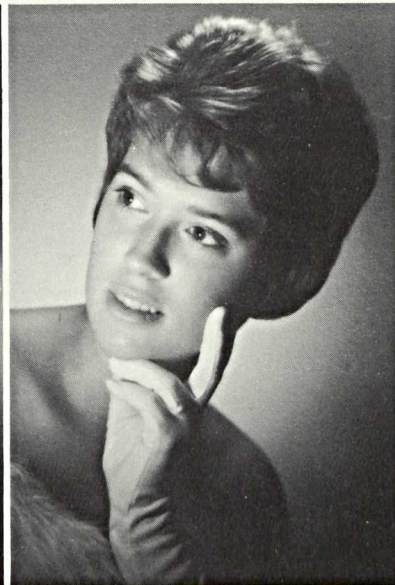
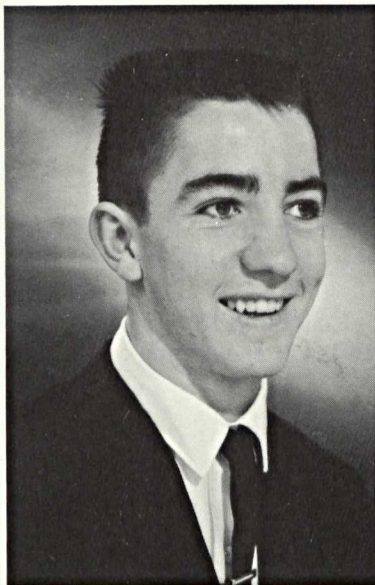
Jack Schmidt
Butte, Montana

Robert Schwartzenberger
Butte, Montana



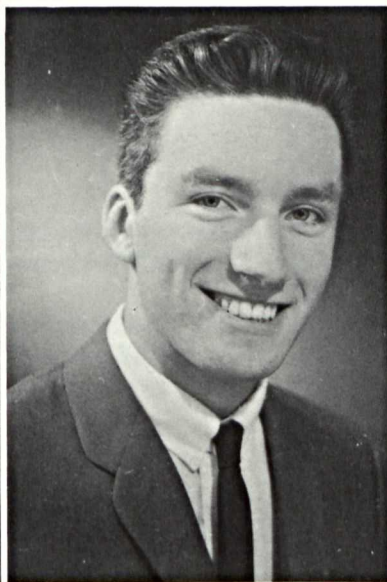
Dan Sebena
Butte, Montana

Marcia Shifty
Butte, Montana



Charles Snyder
Whitehall, Montana

Jo Ann Shisker
Butte, Montana

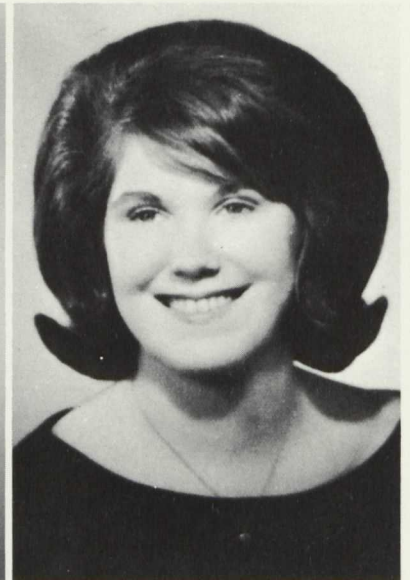


Judy St. Onge
Butte, Montana

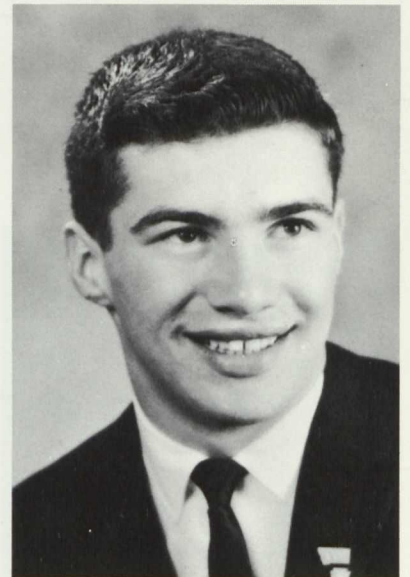
Bob Stratton
Butte, Montana

Don Strom
Butte, Montana

Kathie Sullivan
Butte, Montana



John Sutey
Butte, Montana

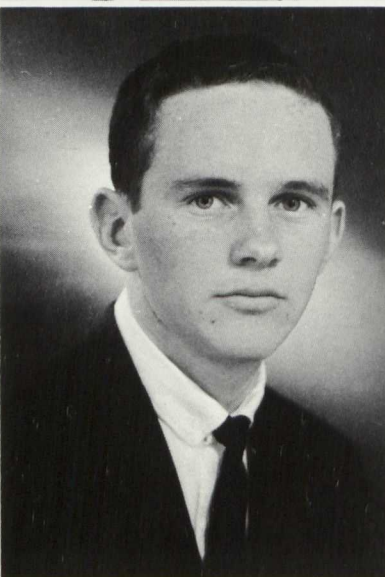


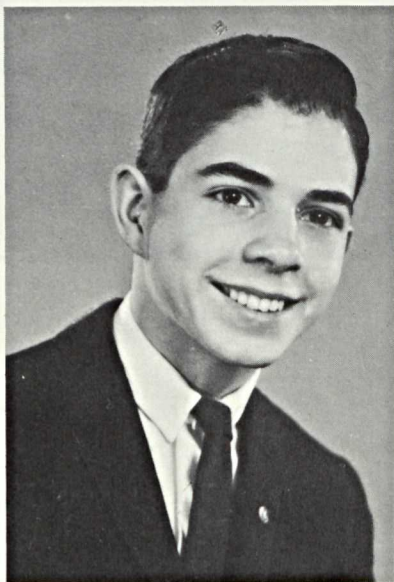
Vivienne Thereault
Butte, Montana



Edwin Thomas
Butte, Montana

Pat Thompson
Butte, Montana





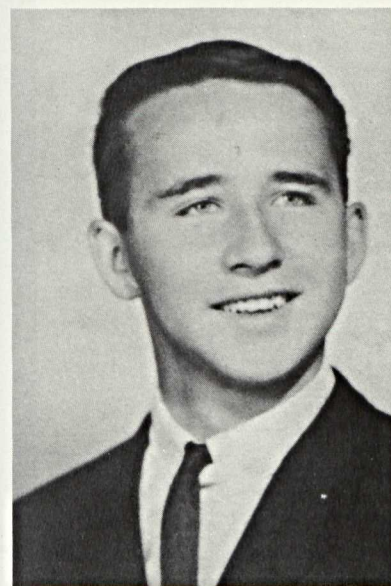
Bill Thurston
Butte, Montana



Carol Wold
Butte, Montana



Wilma Wright
Butte, Montana



Paul Zeigler
Butte, Montana



Angelica Delaurenti
Butte, Montana



Carol O'Mara
Butte, Montana



Proficient Faculty



Scholarship

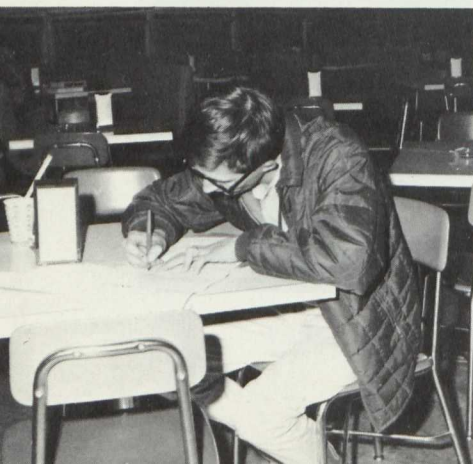
*A
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Perseverance

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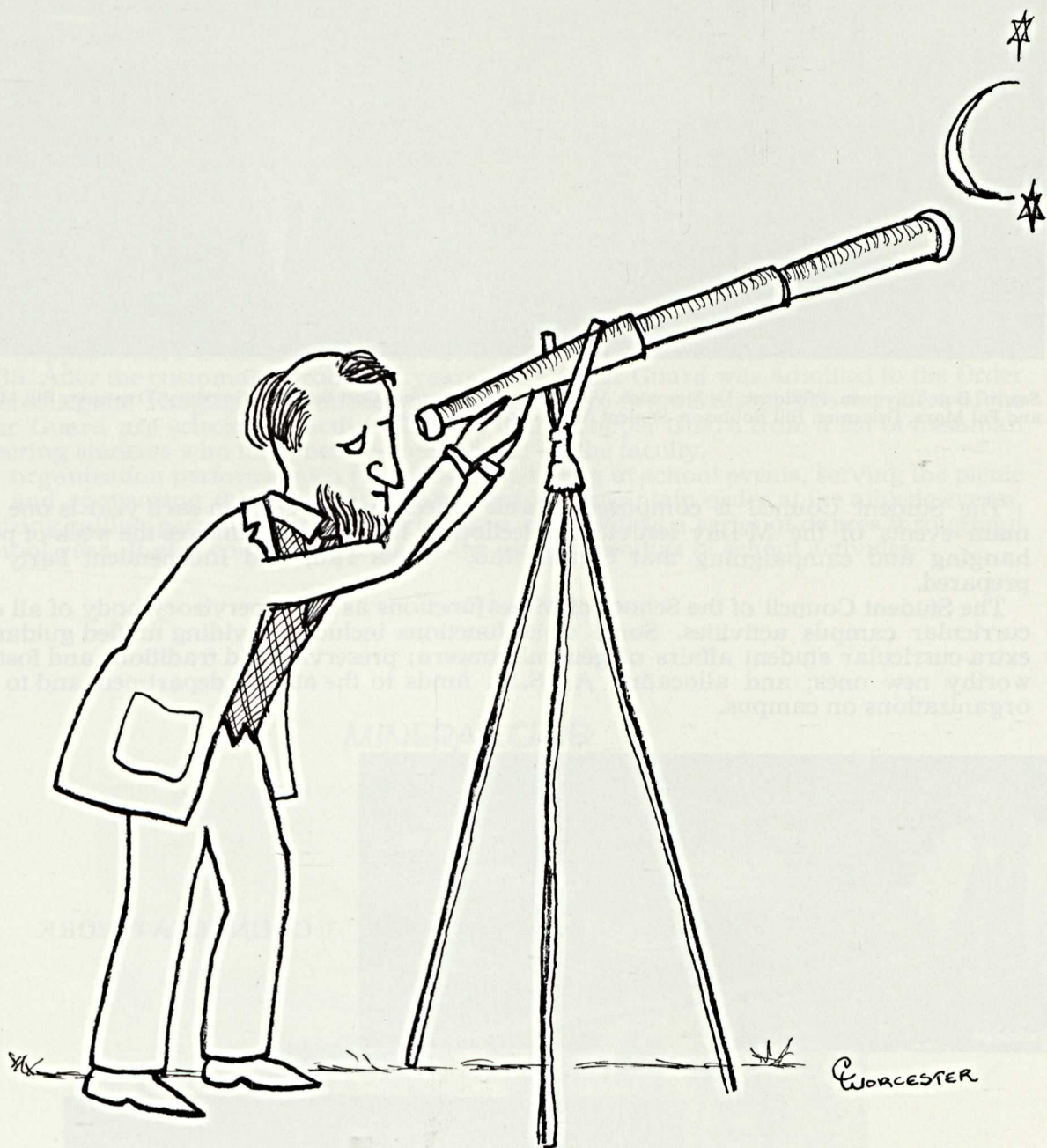
Integrity



Success



ORGANIZATIONS



STUDENT COUNCIL



Seated: Bob Toivonen, President; Ed Simonich, Vice President. *Standing:* Curt Peterson, Secretary-Treasurer; Bill Madison and Pat Marx, Delegates; Bill Robinson, Student Athletic Representative.

The Student Council is composed of able officers whose election each year is one of the main events of the M-Day festivities. Election to the Council climaxes the week of poster-hanging and campaigning that Sigma Rho, Theta Tau, and Independent Party have prepared.

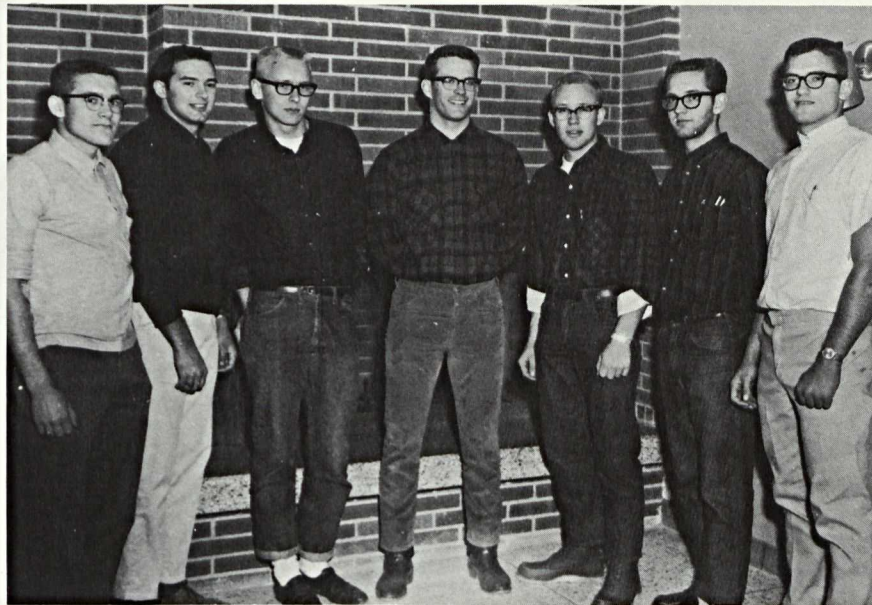
The Student Council of the School of Mines functions as the supervisory body of all extra-curricular campus activities. Some of its functions include providing unified guidance of extra-curricular student affairs of general concern; preserving old traditions and fostering worthy new ones; and allocating A.S.S.M. funds to the athletic department and to other organizations on campus.



COUNCIL AT WORK



COPPER GUARDS



L.-R.: A. Chiamulera, B. Seidel, D. Koskimi, H. Scholz, M. House, C. Degenhart, K. Tholstrom.

The Copper Guard is an honorary service society which was first organized in the spring of 1935. After the customary probation years, the Copper Guard was admitted to the Order of Intercollegiate Knights, the national honorary service organization. The members of the Copper Guard are selected by active members of the Copper Guard from a list of freshman engineering students who have been recommended by the faculty.

The organization performs such functions as ushering at school events, serving the picnic lunch and sponsoring the dance on M-Day, helping maintain order at the athletic events, organizing rallies, perpetuating Mines traditions and holding a series of dances throughout the school year. It also contributes towards the smooth conduct of school activities.

MINERAL CLUB



The Mineral Club is an organization composed of students interested in the collection and study of minerals. The Club meets monthly and also goes on organized field trips to visit some of the many interesting mineral occurrences and localities in the state.

ANDERSON-CARLISLE SOCIETY



AIME OFFICERS: Leroy Wilkes, vice-president; Bill Thompson, president; Larry Eaton, secretary-treasurer; Keith Tyner, vice-president, Don Podobnik, vice-president, absent.

The Anderson-Carlisle Society was formed in 1922 in tribute to two Montana School of Mines students who lost their lives in the service during World War I. The society became a chapter of the American Institute of Mining Metallurgical and Petroleum Engineering in 1943. To be a member of the Anderson-Carlisle Society, student membership must be acquired in the AIME.

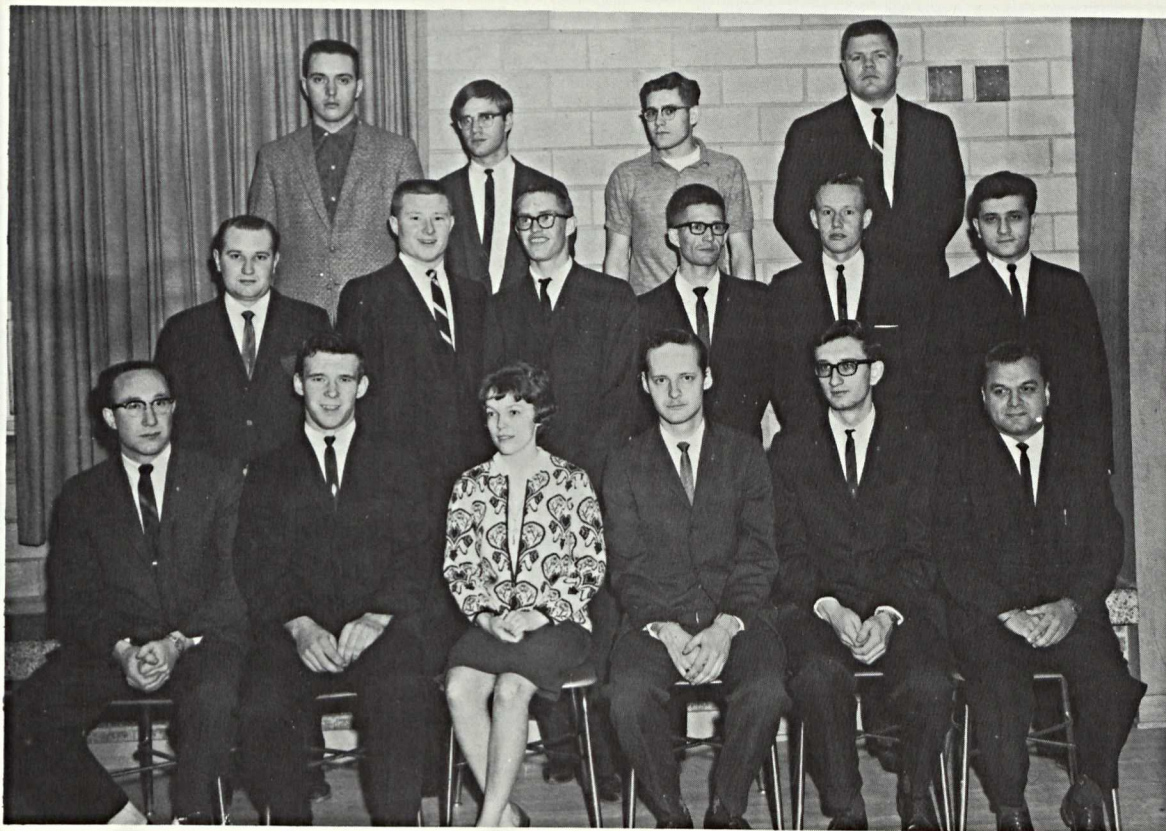
The society sponsors the "E" engineering days on the campus besides the various speakers, films, and engineering subjects.

PETROLEUM SECTION



Seated: Jim Mazza, Jack Weaver, Ed Simonich, Rod Ylitalo. Standing: Joe Kandle, Monsoor Awan, Mr. G. Stolz, advisor, Curt Peterson, Keith Tyner.

AMERICAN SOCIETY OF METALS



Seated: Don Podobnik, Bob Toivonen, Dolly Labranche, Bob Beers, Joe Caddy, Amarjit Brar. *Second:* John Koger, Tom Dadson, Cliff Kavanaugh, Gaston Pasut, Carl Swanson, Ray Murray. *Third:* Bob Hill, Doug Meseroll, Al Chiamulera, Bob Shogren.

MINING SECTION



Seated: Leroy Wilkes, Herb Sargent, Bill Thompson, Colin Redden, Larry Eaton. *Standing:* Frank Pachas, Jim Ek, Lalit Parekh, Harold Wde, Ariel Orellana, Kent Taylor, Raif Zacca, Bob Frantz.

M-CLUB



First Row, L. R.: Chuck Starin, Tom Downey, Terry Hebert, John Giacomina, Mike Hanley, Wally Busenius, Rod Ylitalo. *Second Row:* Pat Leary, Mike Lewis, Mike Marinovich, Don Poole, Curt Peterson, Jim Furaus, Ed Simonich. *Third Row:* George Martin, John Sutey, Bill Hicks, Ken Spear, Bill Madison, Jack Weaver, Joe Sullivan, Gene Lescantz, Dave Koskimaki.

The M-Club is the organization of men who, besides maintaining a "C" average scholastically earned a letter in inter-collegiate athletics during any one season. The M-Club also sponsors the Homecoming activities by selection of fine co-eds as queen candidates, Bonfire and pep rally on the eve prior to the game, and the semi-formal dance on the night of the game.

This year the M-Club also was active in the fund drive for the new Alumni Stadium.

CHEERLEADERS



L.-R.: Carolyn Stuart, Carol Wold, Leona Harrison, Mary Lou Rule, Diane McElhenny.

INTERNATIONAL CLUB



Left to Right, First Row: Frank Pachas, President; Jim Ek, Vice-President; Joanne Magnan, Secretary; Raif Zacca, Treasurer; Vivienne Thereault, Diane Platt. *Second Row:* Mansoor Awan, Ed Hislop, Ariel Orellana, Joe Toy, Ralph Malahowski, Wilma Wright, Tony Siddique, Carol Worcester, Youssef Karvandi, Professor R. I. Smith, Advisor.

BAND



First Row, L.-R.: Director, Rod Lewis; Bill Thurston; Mrs. Howard Forsythe; George Hardtla; Otis Mohn; Bob Toivonen. *Second Row:* Bill MacFarlane; Dave Duncan; Mike Garverich; Judy St. Onge. *Third Row:* Bill Chebul; Pete Knudsen; Harold Yde; Frank Wills. *Fourth Row:* Mrs. Harold Yde; George Barker; John Domiteovich.

ASSOCIATED WOMEN STUDENTS

Freshman



Bottom, First row L.-R.: Carma L. Hodges, Angelica Delaurenti, Judy St. Onge, Vivienne Thereault, Pat Thompson, Claudia Reindl, Judy Boundy, Rena Richards, Carole Fanning. *Second row:* Susie Kephart, Carol Worcester, Margarette Berryman, Diane McElhenny, Linda O'Neill, Carol Wold, Patti Dunks, Linda Murray. *Third row:* Wilma Wright, Judy Hayes, Kathy Sullivan, Marcella Burke, Betty Richardson, JoAnn Shisker, Mary McGrath, Margie McGarry, Fran Ferris, Cheryl Boehler, Leona Harrison, Joani Britton.

The Associated Women Students is an organization composed of all co-eds who attend the Montana School of Mines. The peppy cheerleaders who aid in promoting the school spirit are selected from the members of the AWS.

This active organization participates in many school activities, the most traditional being the formal Christmas dance. They also sponsor teas for their mothers and future co-eds, and coke hours. This year the co-eds volunteered to help sell stickers for the school's new stadium.

Sophomore



Bottom, First row, L.-R.: Ann Mullany, Sandy Salovich, Cheryl Costello, Cathy Burke, Kathy Verona, Carolyn Stuart, Carol Melvin, Midge Winston, Margaret Gardner. *Top row:* Charlotte Matthews, Annette Fraser, Ann Murawski, Mary Jean Ungaretti, Sheila Dorgan, Ellen Hurlbut, Jane McCarthy.

Officers



Seated, L.-R.: President, Kathy Verona; Vice-President, Fran Ferris; Secretary-Treasurer, Sheila Dorgan. *Standing:* Delegates, Jane McCarthy, Rena Richards, Midge Winston.

STUDENT WIVES



First row, L.-R.: Mrs. Donald Nelson; Mrs. David Eccleston; Mrs. Kent Taylor; Mrs. James Furaus; Mrs. Angus Hemp. *Second row:* Mrs. Michael Lewis; Mrs. Sam Higinbotham; Mrs. William Robinson; Mrs. John Koger; Mrs. Keith Tyner; Mrs. James Fenton. *Third row:* Mrs. Otis Mohn; Mrs. James Rose; Mrs. Richard Thomas; Mrs. Robert Seidel; Mrs. John McCaslin; Mrs. Fred Earll; Mrs. Edwin Koch; Mrs. Clifford Laity; Mrs. Lee Tedesko. *Fourth row:* Mrs. Charles Gale; Mrs. Jack Weaver; Mrs. William Thompson; Mrs. John Burke.

FACULTY WIVES



Seated, L.-R.: Mrs. R. I. Smith, Mrs. E. G. Koch, Mrs. J. Murray, Mrs. W. R. Mannon, Mrs. K. S. Stout, Mrs. Chelini. *Standing:* Mrs. W. A. Vine, Mrs. S. W. Nile, Mrs. W. C. Laity, Mrs. A. Simon, Mrs. F. N. Earll, Mrs. F. M. Young, Mrs. J. G. McCaslin, Mrs. W. B. Hall, Mrs. F. Habashi.

WESLEY FOUNDATION

Seated, L.-R.: Mrs. R. Neal, sponsor; Dale Shifty, Pres.; Charlotte Matthews, secretary; Judy Worth, communications coordinator; Norman Hampa, V. Pres. *Second Row:* JoAnn O'Brien, Carole Fanning, Sue Jackson, Linda Plubell, Chuck Bliss. *Third Row:* Delores Maunder, Jeanine Richards, Ellen Hurlbut, John Long, Marilyn Polkinghorn. *Last Row:* Bill Roberts, Norman DeNeal, Bill Hicks. *Missing when picture was taken:* Henry Hoel-lein, Treasurer; Dan Piazzola, Laura Plymale, Norman Hanni.



NEWMAN CLUB



First Row: Frank McGarry, Mick Hanley, Treasurer; Mike Arne, President; Father Burns, Chaplain; Margaret Gardner, 1st Vice-President; Annette Fraser, Secretary; Lynn Fleming, 2nd Vice-President. *Second Row:* Terry Angove, Lonnie Mollberg, Al Arvish, Carol Melvin, Marcella Burke, Peggy Frelick, Norine Burke, Mary Lou Pozega, Margie McGarry, John Sutey. *Third Row:* Larry Nelson, Nancy Swanson, Jane McCarthy, Vivienne Thereault, Kay Matthews, Pat Thompson, Linda O'Neil, Nancy Sullivan, Cathy Sullivan, Mary McGrath, Bette Richardson.

MAGMA STAFF

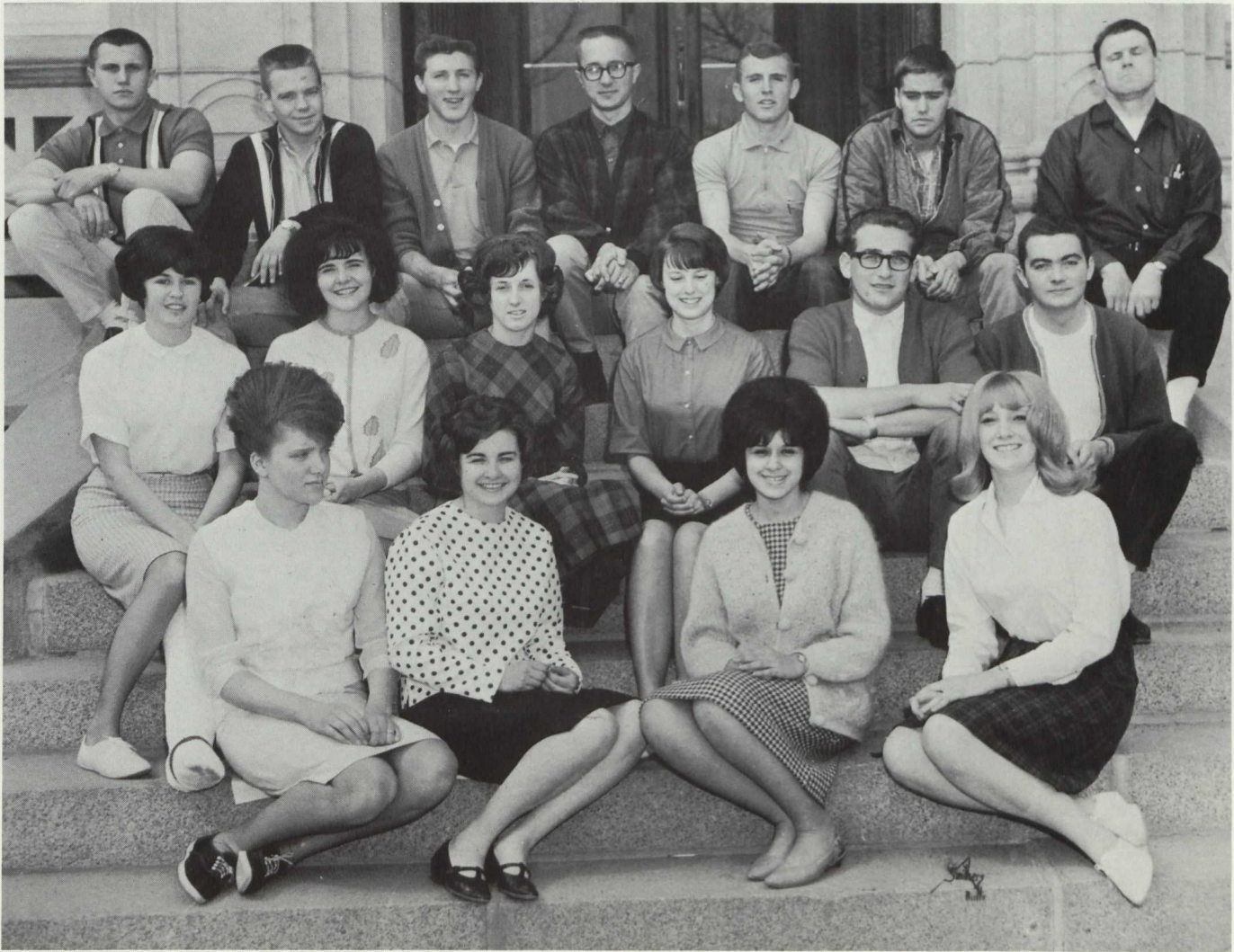


Foreground: Russ Bills, Judy St. Onge, Pat Thompson, Carol Fanning. *Sitting:* Stan Miller, Wayne Peterson, Randy Scharf, Vivienne Thereault, Annette Fraser, Rod Ylitalo, Chuck Starin. *Standing:* John Gow, Jack Weaver, Dex Leonard, Keith Tyner, Colin Redden, Jim Ek, Diane Platt, Mansoor Awan, Bill Madison, Pat Marx.

The Magma is the Montana School of Mines yearbook which is prepared by the members of the yearbook staff. It contains pictures and articles of events, organizations, students and faculty along with many activities that concern the whole campus during the year.



AMPLIFIER



First row: Marcella Burke, Jane McCarthy, Linda Murray, Margaret Berryman. Second row: Mary McGrath, Carol Melvin, Carol O'Mara, Rena Richards, Mike Kabalin, Will McLaughlin. Third row: Bernard Vetter, Ken Ronning, Creighton Barry, Earl Wahl, Don Brunell, Pete Norbeck, Al Dirksen.



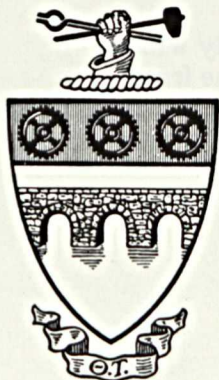
Seated: Tom Downey, Mike Fredrickson, Kathy Verona, John Evans. Standing: Mr. Simon, Mr. Stolz, Advisors.

The Amplifier, a bimonthly paper, is the main source of campus news. It contains the current ASSM news, notice of future school events, unbiased reports regarding campus controversies, and news of general activities of the entire student body.

THETA TAU



Left to right, First row: Jim Vincelette, Jack Weaver, Curt Peterson, Dan Stowe, Ed Simonich, Dave Duncan, Clint Dagenhart. Second row: Bob Lehfeldt, John Koger, John Burke, Bob Balhiser, Rudy Wachtler, Steve Denton, Carl Swanson, Eldon Lindstrom. Third row: Chuck Parret, Keith Tyner, Bob Ramsey, Tom Dadson, Pat Marx, Tom Simmons, Bill Madison, Bill Robinson, Mike Arne, Joe Cunningham.



Theta Tau is a national professional fraternity including all branches of engineering and geology students. Its active chapters on almost all major campuses throughout the United States consist of 18,000 members.

The Psi Chapter of MSM has actively participated in school functions since 1932. The annual pledge banquet for the initiation of the new members was held this year in conjunction with Founder's Day. The fraternity is active in intramural and varsity sports. It also helped lay sod for the Mines' new stadium. This year the Psi Chapter captured four of the five Student Council positions.

SIGMA RHO



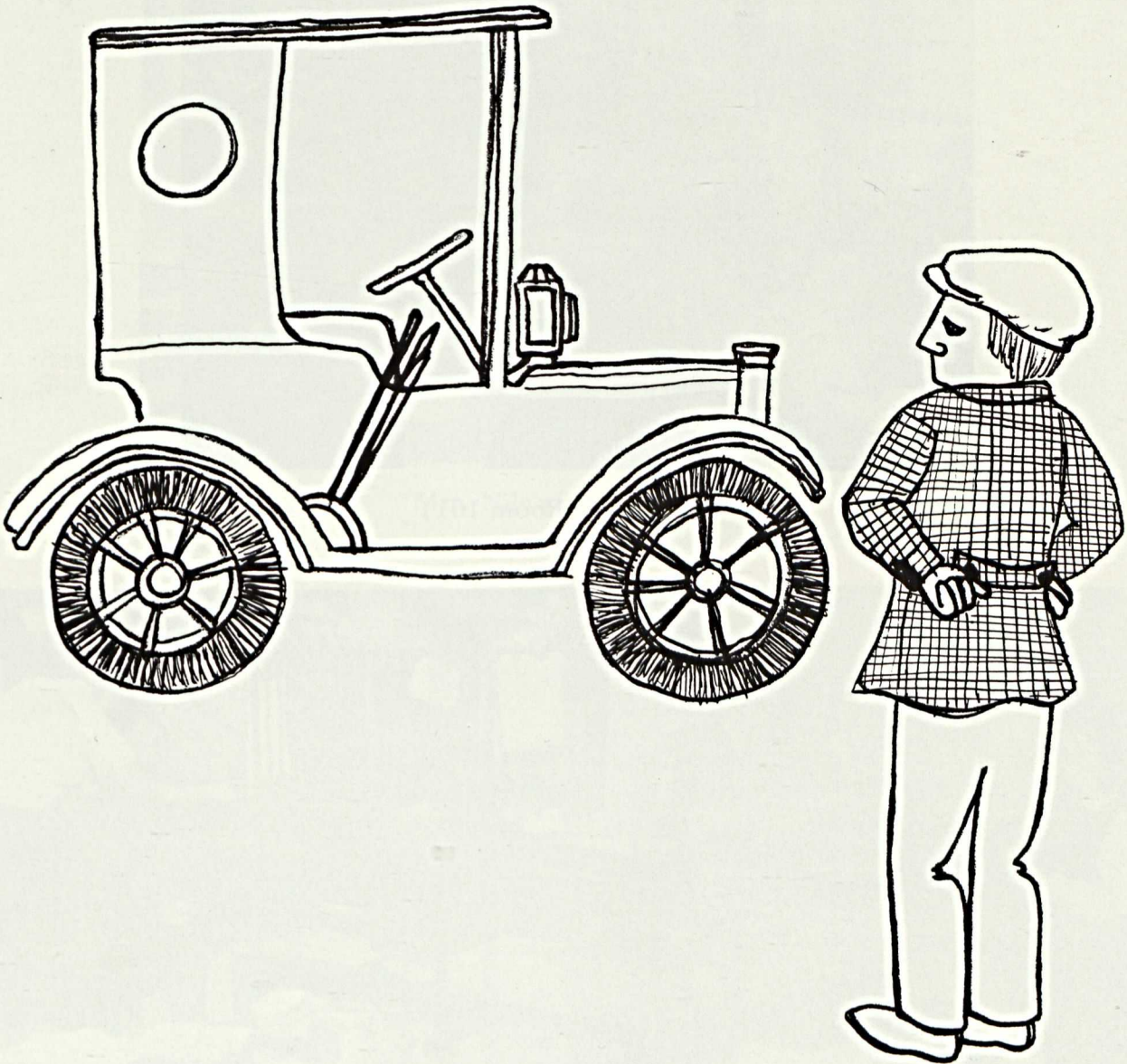
Bottom, First row, L.-R.: Colin Redden, Frank Pachas, Kent Taylor, Raif Zacca, Al Chiamulera. Second row: Joe Kandle, Mansoor Awan, James Ek, Bob Mataleska, Wally Busenius, Fred Dexling. Third row: Jim Rose, Peter Percival, Rod Ylitalo, Douglas Meseroll, Leroy Wilkes, Sam Higinbotham, Professor Will Cox. Fourth row: Bob Heaphy, Lee Tedesco, Bill McFarlane, Jeff Wiant, Don Podobnik, Joe Caddy. Fifth row: Bob Shogren, Cliff Kavanaugh, Henry McClernan, Bob Toivonen, Pete Norbeck. Last row: George Barker, Russ Bills, Marv Mitchell, Jim Jenks, Ray Hyypa, Bill Clarkson, Bill Thompson.



Sigma Rho is a professional engineering fraternity which was organized at the School of Mines in 1927. The fraternity is one of the most active groups on the campus. Sigma Rho has actively promoted the College throughout Montana and the country during the past year.

Some of the most distinguished persons in the minerals industry are members of Sigma Rho.

EVENTS





Underneath were the bodies of the weak.

R
E
G
I
S
T
R
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O
N



Segregation (Room 101)



Burt raking it in.



All those I have to buy!



Mrs. Nile's racket



Free drink!



HOMECO

International Club Float



Frosh-decorated car



Sigma Rho in Sunday best

MING...



Queen Carol



Fuzz round up Sigma Rho.



Princesses Mary, Diane, Mary Lou, Margaret.

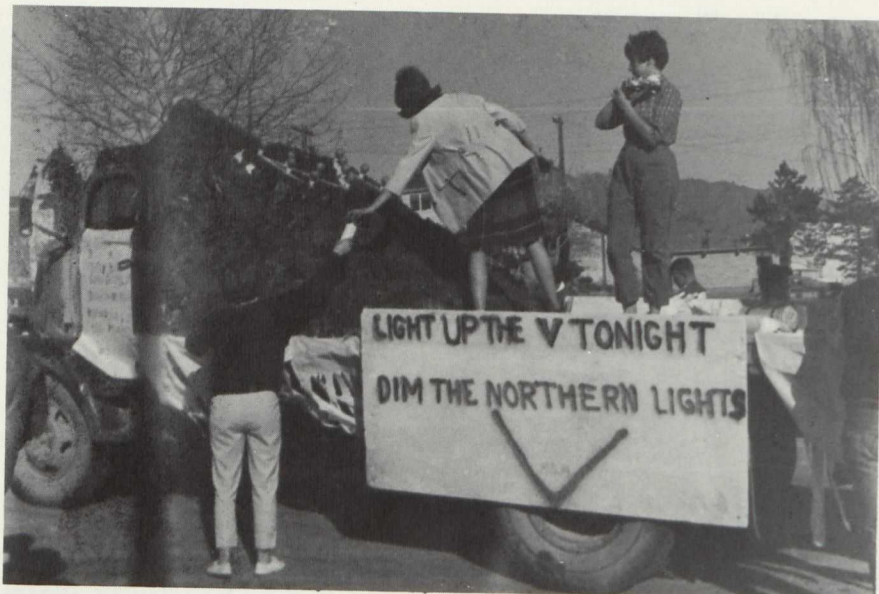


Sigma Rho Attempt

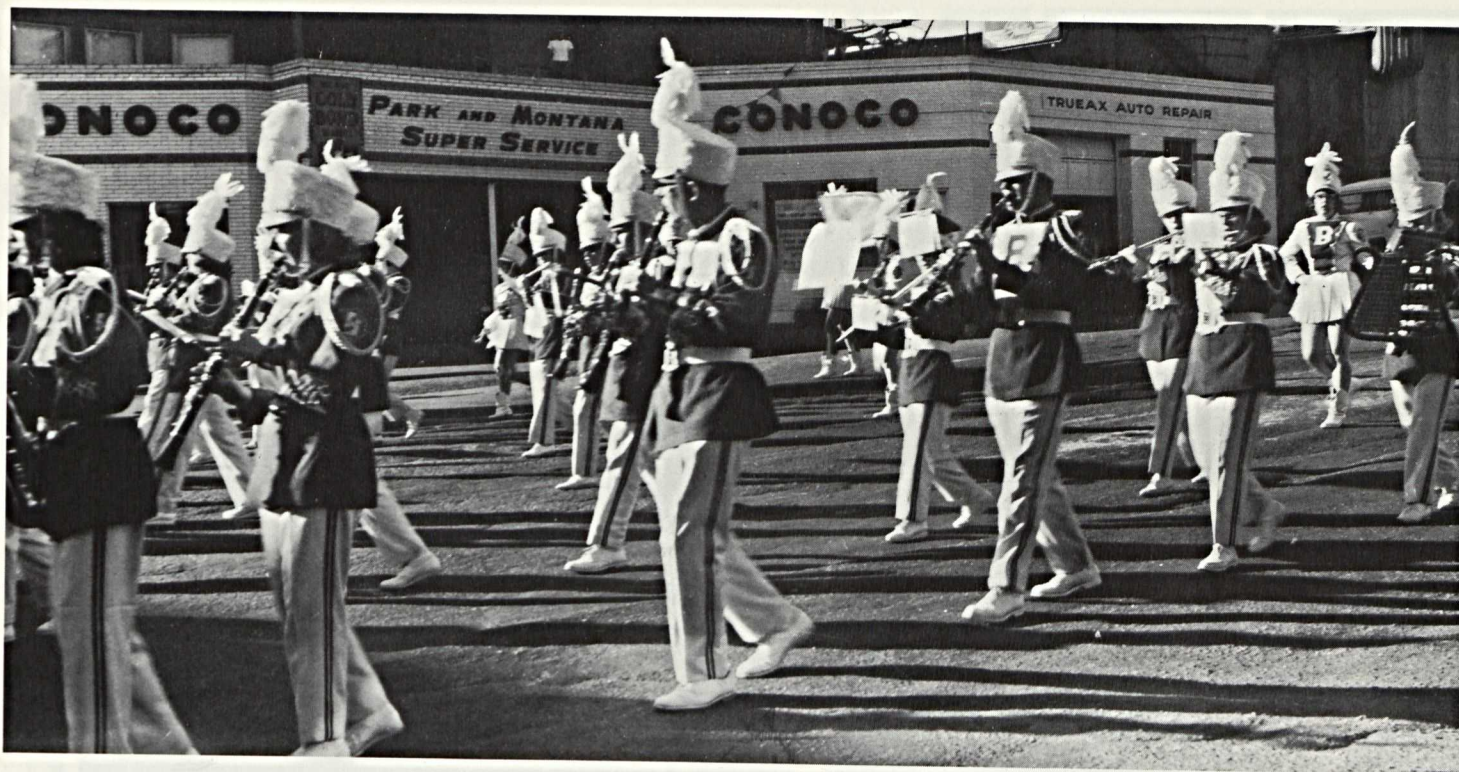
...PARADE



MSM Pep Band



Sophomore Float



Butte High Band

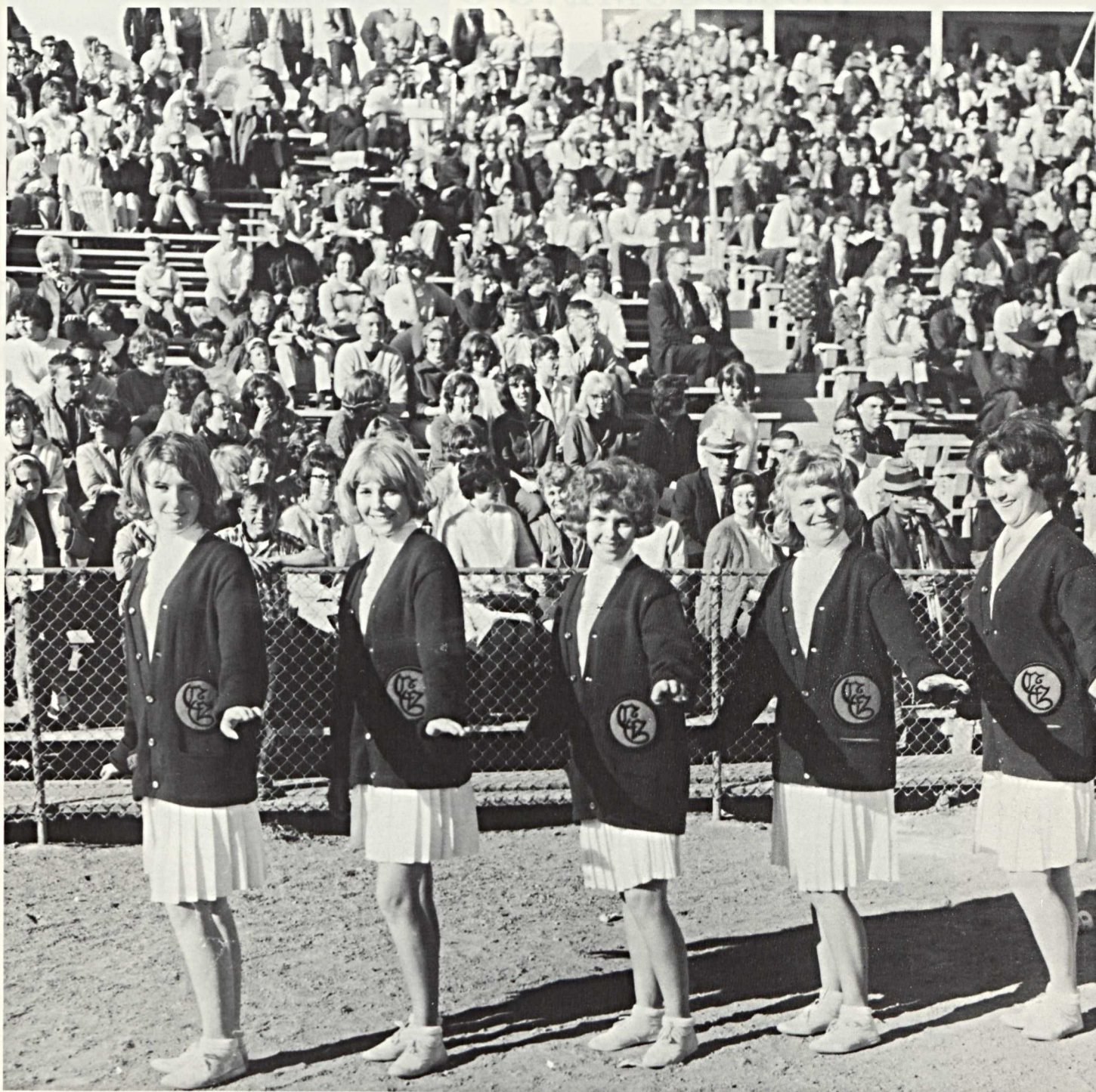


Butte Central Band

CHEERLEADERS...



Left to right: Carolyn Stuart, Diane McElhenny, Carol Wold, Mary Lou Rule, Leona Harrison.



Left to right: Diane McElhenny, Mary Lou Rule, Chris Gale, Carol Wold, Carolyn Stuart.

...IN ACTION

HOMECOMING QUEEN...



Carol Melvin

The privilege of being chosen Homecoming Queen by the student body for the year 1964-1965 is an honor which I will always cherish. During my two years at MSM I have gained invaluable experiences academically, as well as socially, which will help me throughout my college career. Anyone who has ever attended MSM will never forget the fine qualities of the teaching and administrative staff, the ideal atmosphere of the campus, and the opportunity to meet and know many students.



Queen and princesses.



Princesses and chauffeur.



Queen and escort.

...AND ENTOURAGE



The Crowning.

The Crowd.

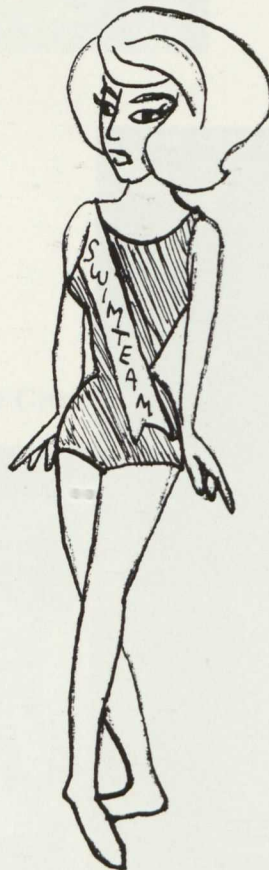


HOMECOMING

DANCE

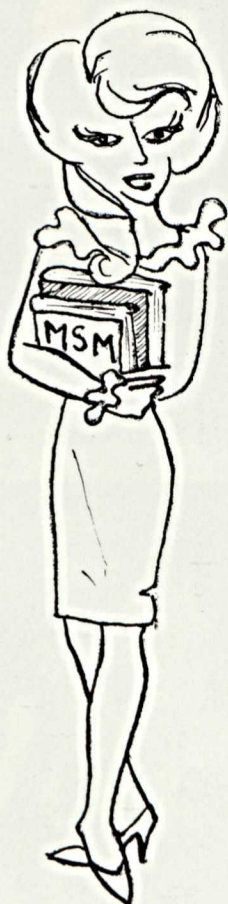
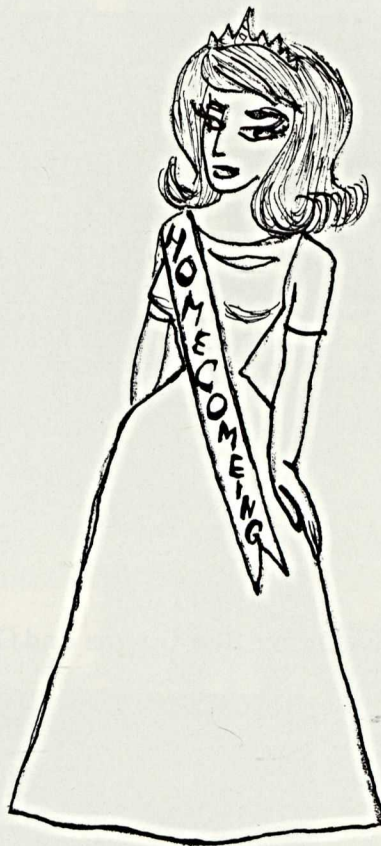


....AND



G. WORCESTER

MORE EVENTS



Worcester

GRAND FINALE OF BASKETBALL SEASON

THE GAME AND THE DANCE



Enter contestants - Sigma Rho Go-gos and Campus Cuties.



Campus Cuties scoring.



Sigma Rho Go-go yells exultantly.

Go-go and Campus Cutie in mid-court minuet.

Have ball - will keep same.





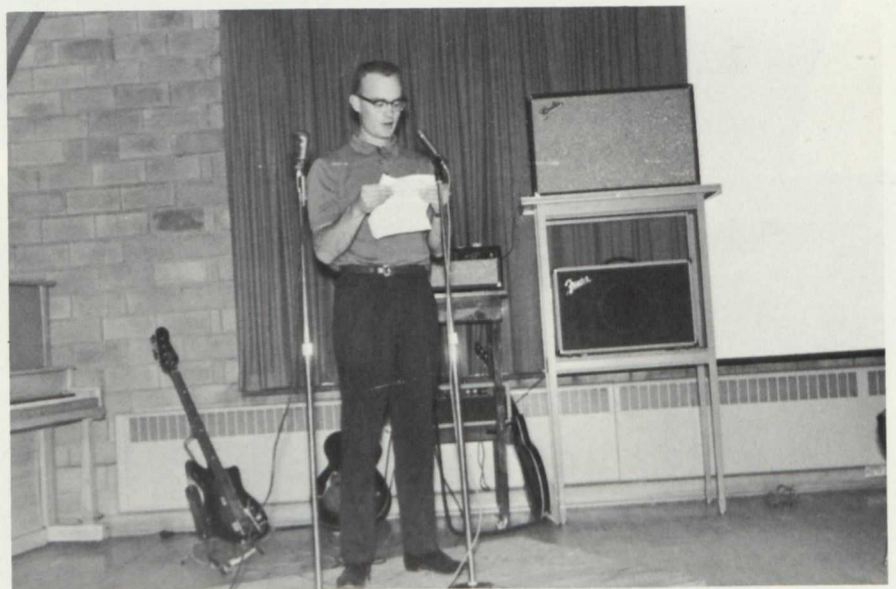


"You can't get a man with a gun!"



Mr. Mannon's sermon

HOOT





Butte couple

ENANY



Dillon group



Dillon girl



The Dardanelles



M. C. Bob Seidel



Willy McLaughlin

ENANY



Attempt of Sue, Patty, and Charlotte



Dorm boys



"King of the Road" Phil

INTERNATIONAL CLUB DANCE



Dig that crazy goulash!



You don't say!



Music soft and sweet by the R-J Quartet



I know some clean ones, too.

Gentlemen prefer blondes

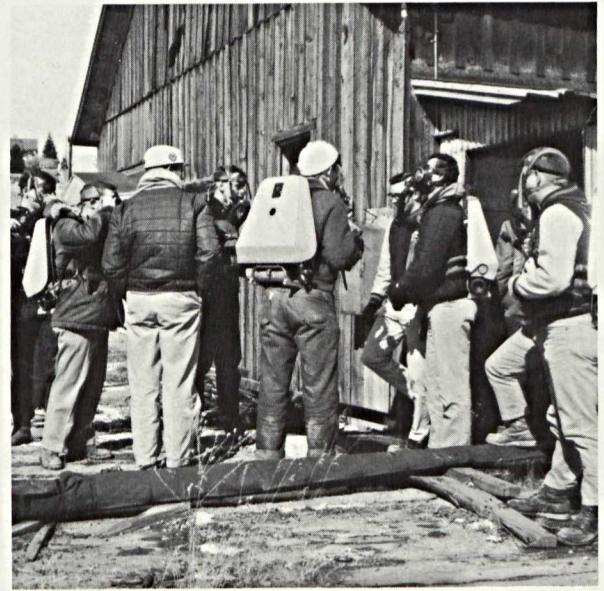


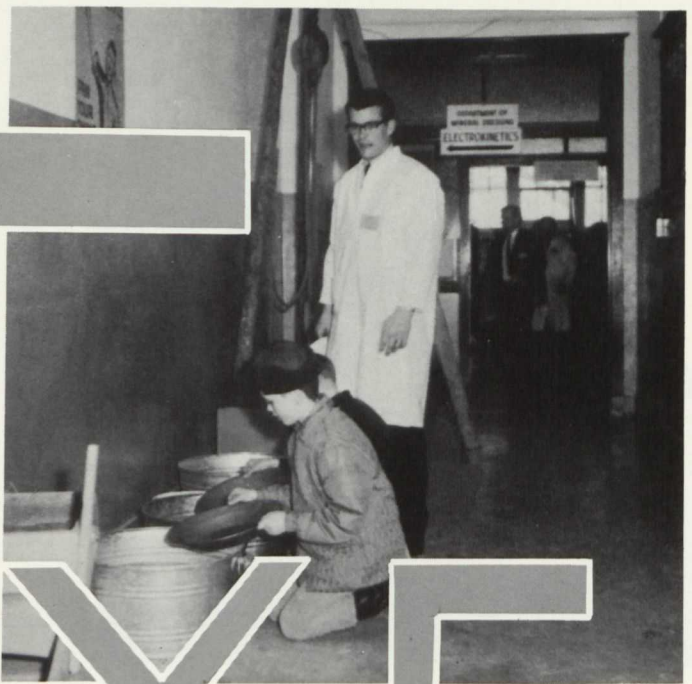
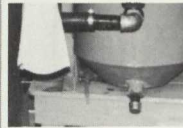
When you're smiling....

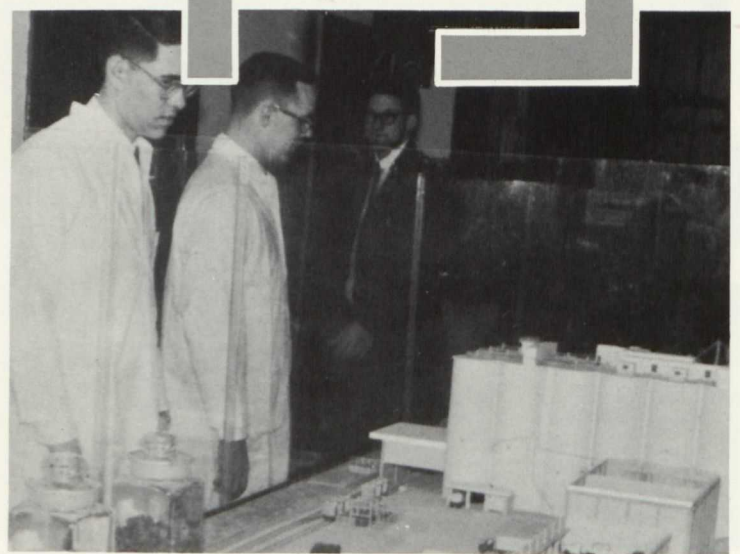
PROGRESS ON NEW STADIUM

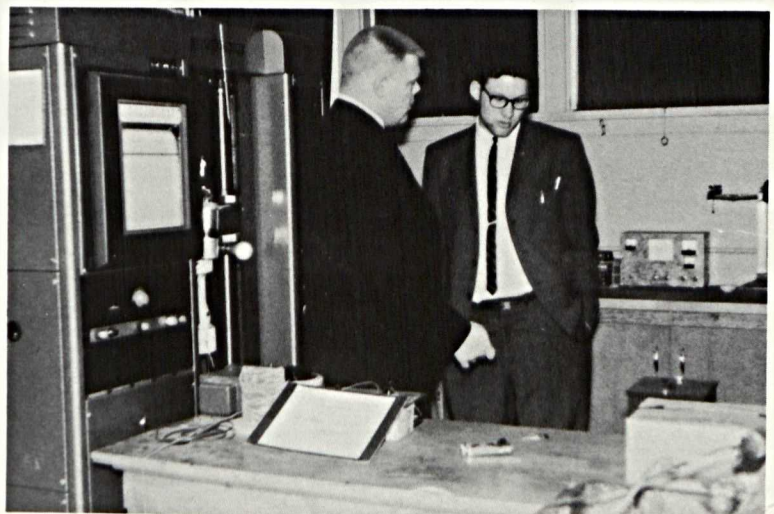
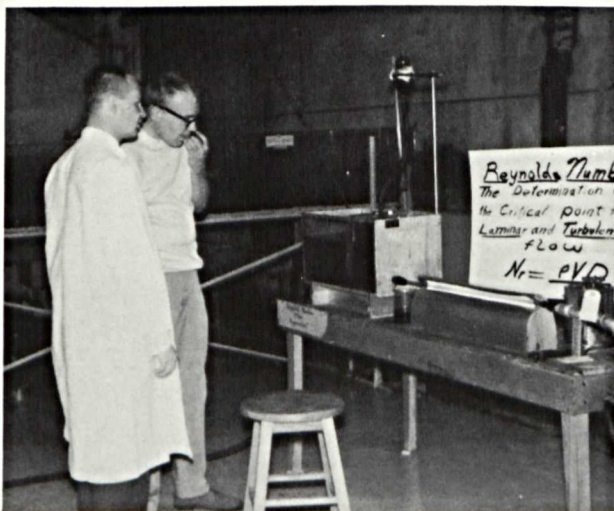
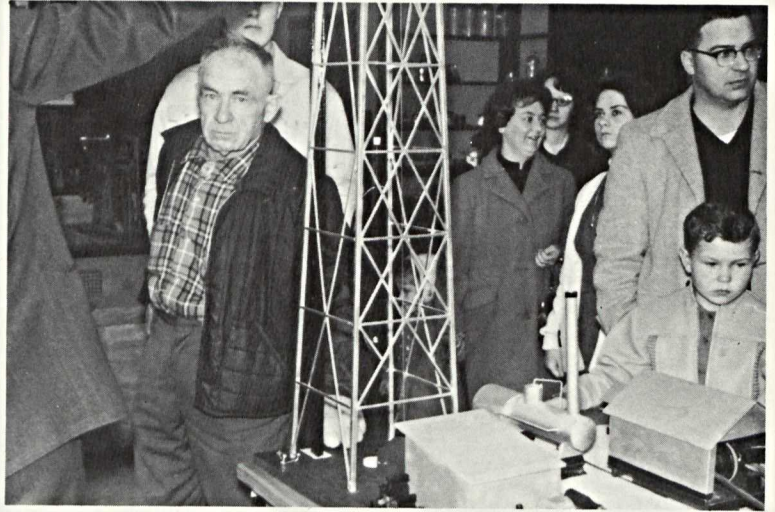
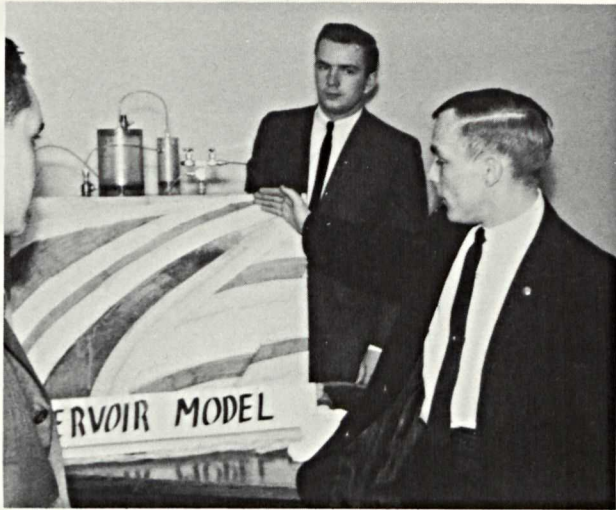


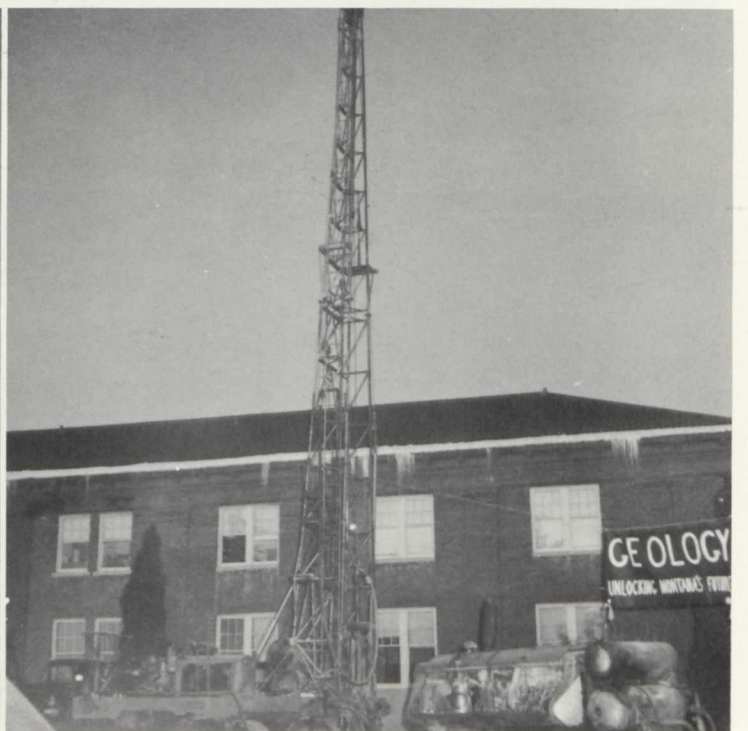
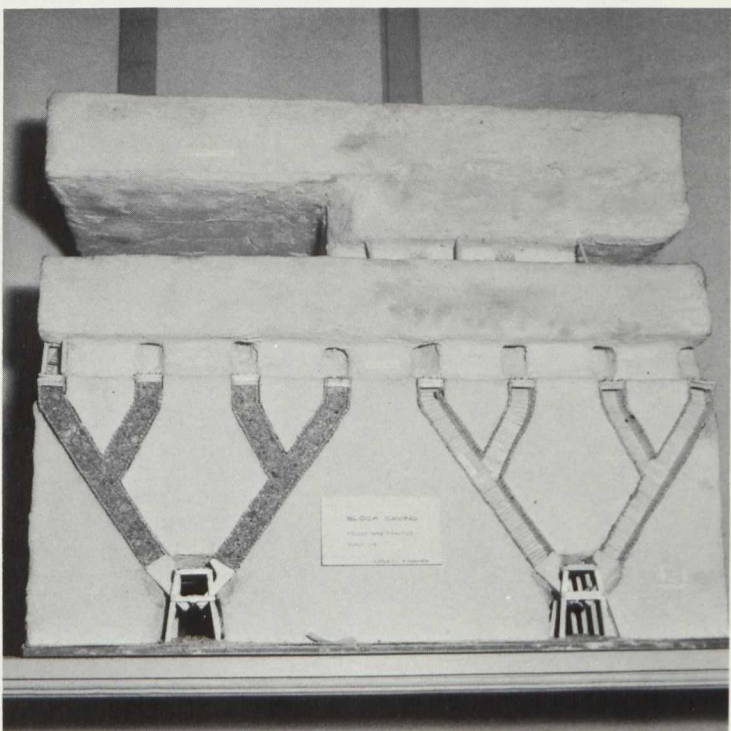
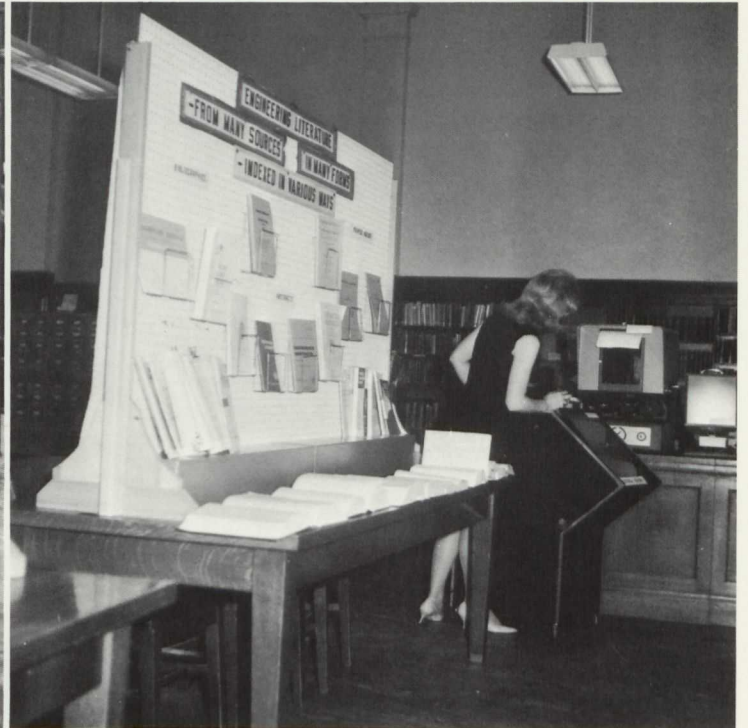
MINE RESCUE TRAINING

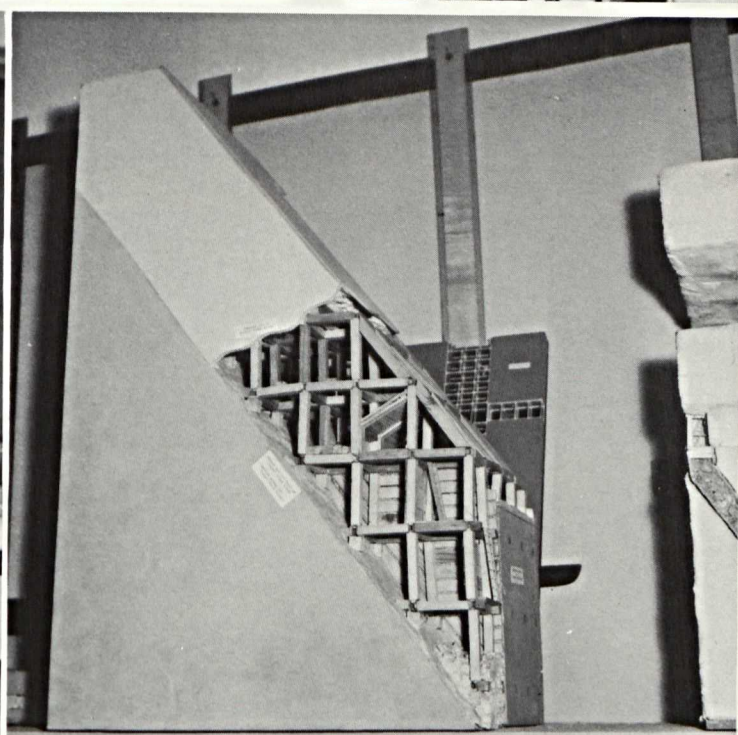
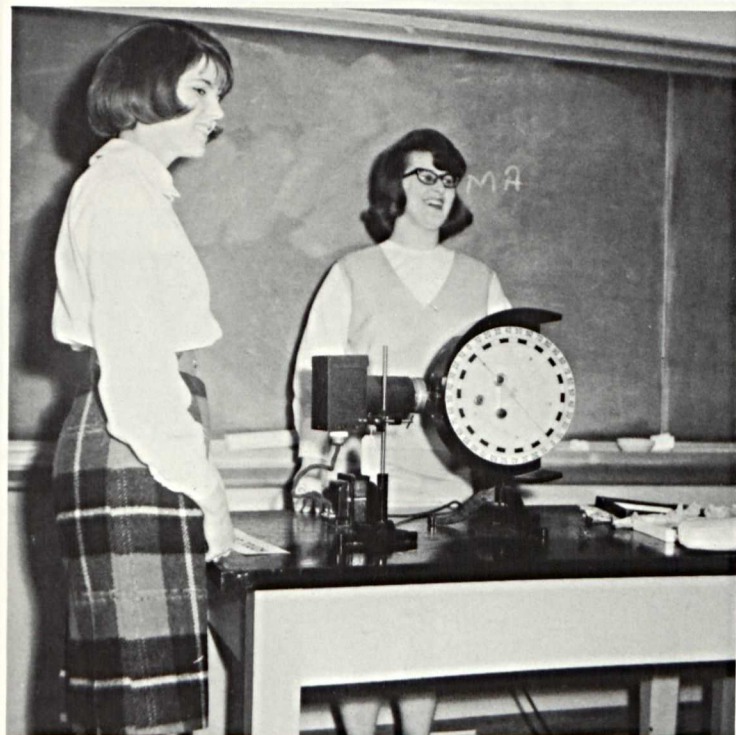
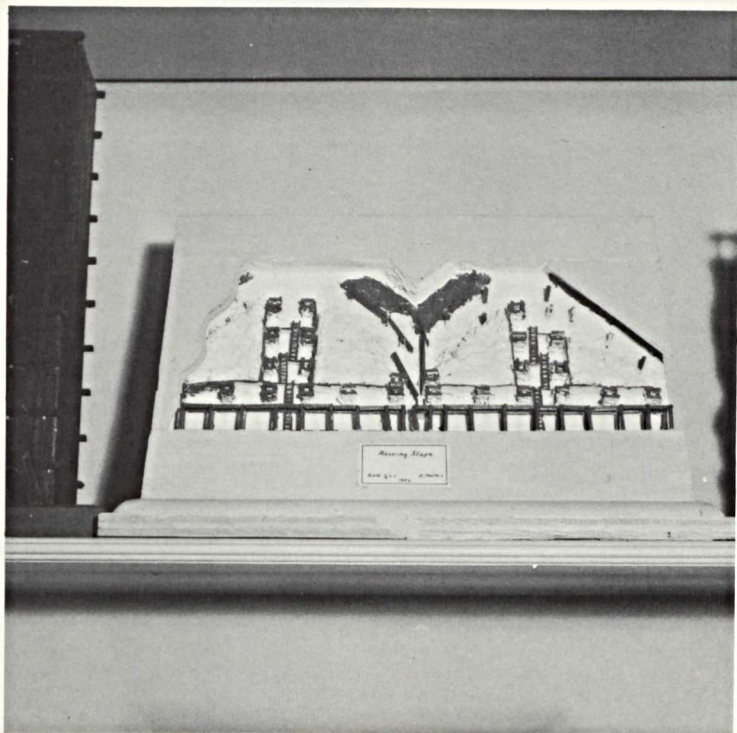












MAY



DAY





"Climb every mountain."



Come on, you guys. Get the lime out!



"I've been working on the M all day."



Hope this doesn't give my folks ideas.



Who tripped me?



Clean sweep!



Go for your gun!



Third degree.



This is a job for Super YDE.



Yeah, beaver shooting?



The old "mudhole."



Come to me, baby.

EXTRA JUNIOR PROM ACTIVITIES





EXTRACURRICULAR ACTIVITIES

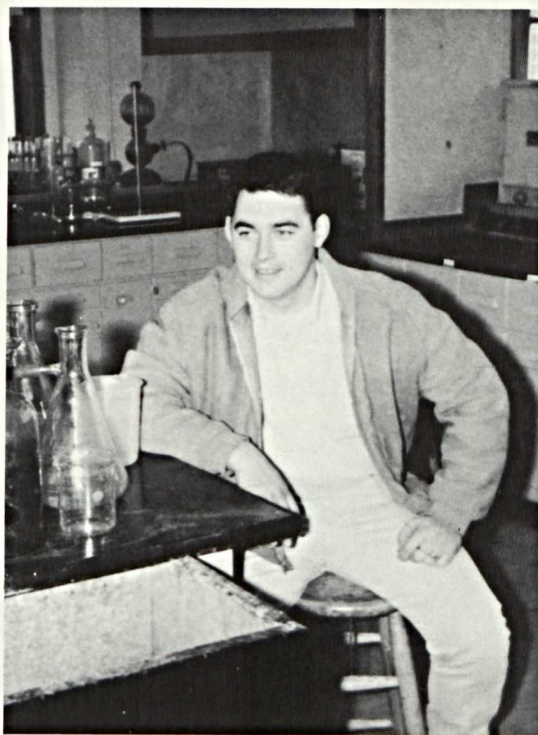


At Sigma Rho
Snuff - the economy size



At Petroleum Department
Time out!

At Metallurgy Department



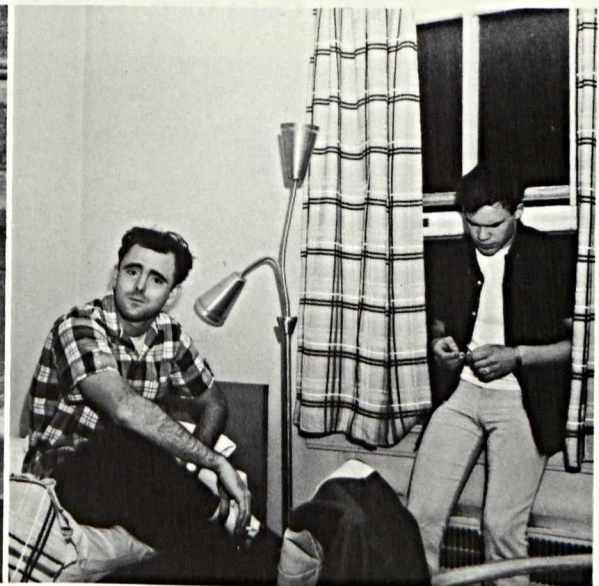
One especially hard-working
graduate.

At M-Day



Ride 'em, cowgirl!

At the Dorm



No kidding - it's a BS degree.

A LOOK AT CAMPUS



Hurlbut receives Colonists' award.
That's our Magma girl Ellen.



In the Gym
Darned thing gets heavier *every* year.

At the AWS



Have smile, will travel.

At the Chess Club.



Logic training for calculus

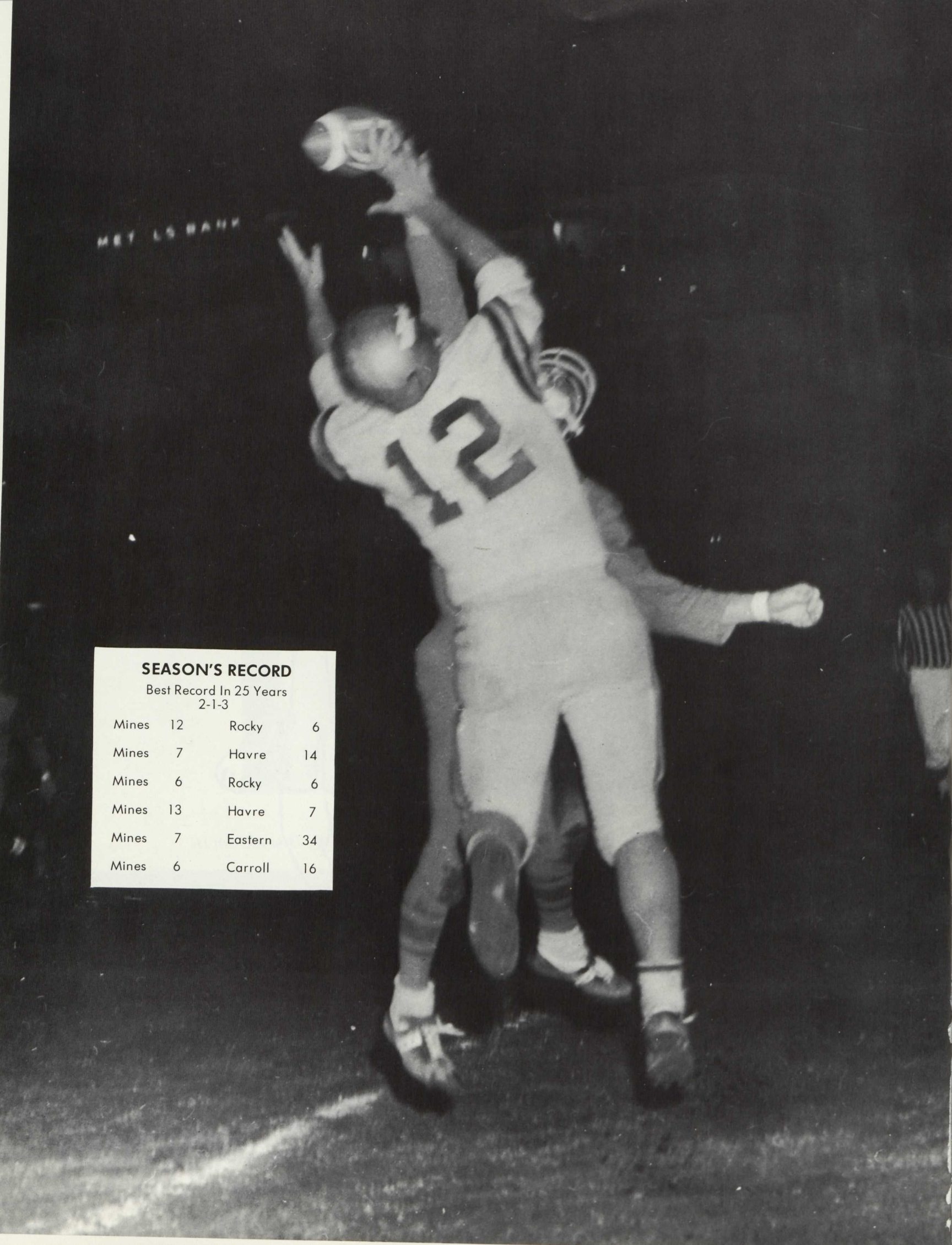
In the Sub



Is this all the petroleum people have to do?

SPORTS





SEASON'S RECORD

Best Record In 25 Years
2-1-3

Mines	12	Rocky	6
Mines	7	Havre	14
Mines	6	Rocky	6
Mines	13	Havre	7
Mines	7	Eastern	34
Mines	6	Carroll	16

All-

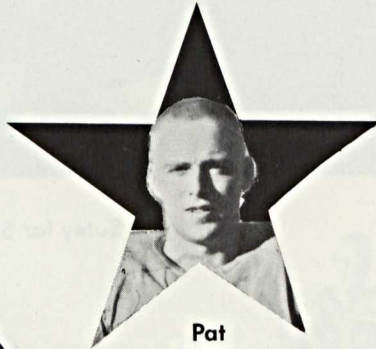
Conference



John
Evans



Bill
Madison



Pat
Leary
Most Valuable Back



Terry
Hebert



Chuck
Starin
Most Valuable Lineman



Ed
Simonich



Ken
Tholstrom

1964



Sutey for Six



Creighton Barry



John Sutey



Carl Wolverton



Tom Downey

On the Move





Rocky Trapped for a Loss



John Giacomino



Ron Koehler



Mike Lynch



Henry Scholz

Light Breaks Away



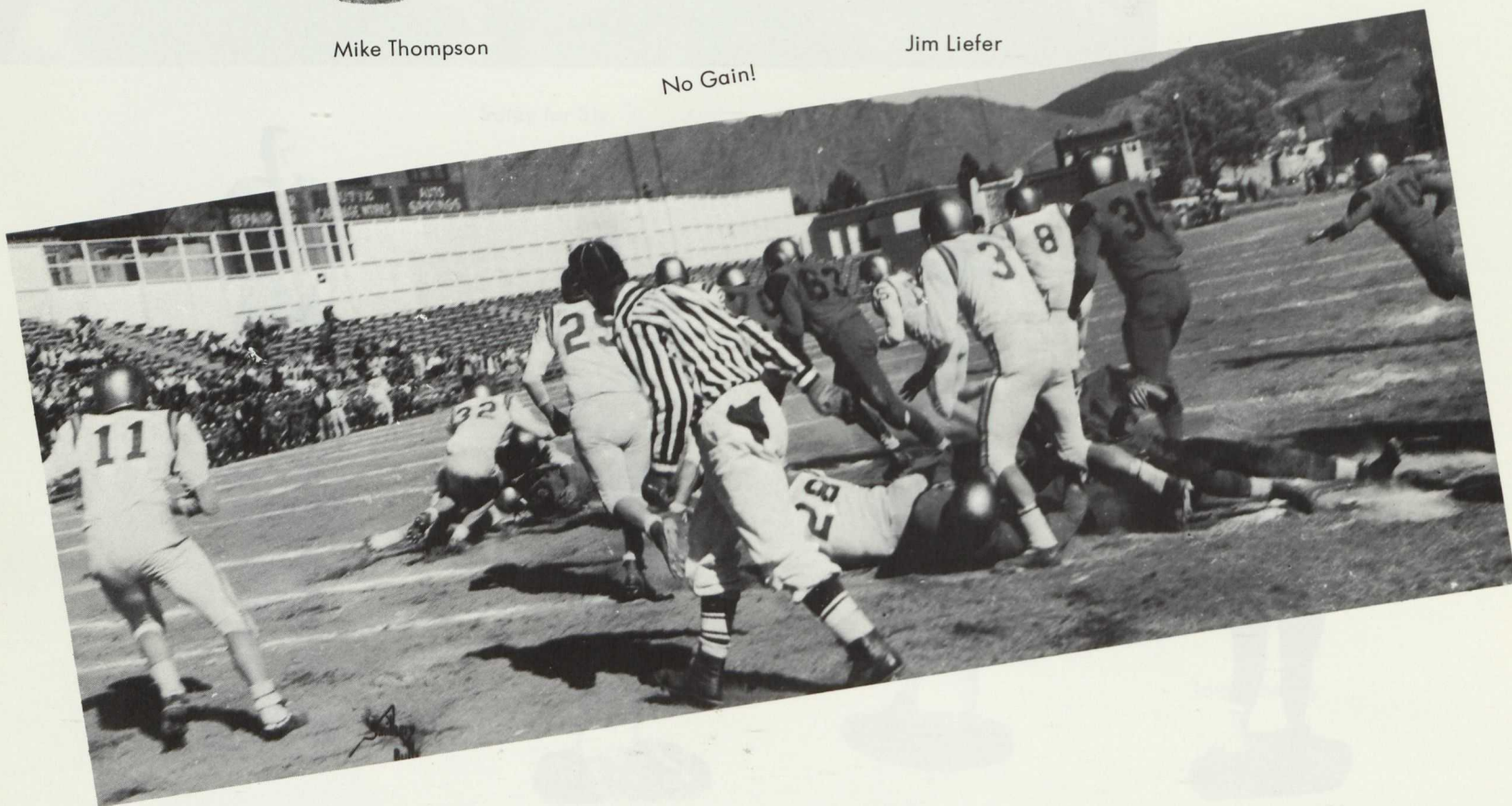


Mike Thompson



Jim Liefer

No Gain!



Mike Garverich

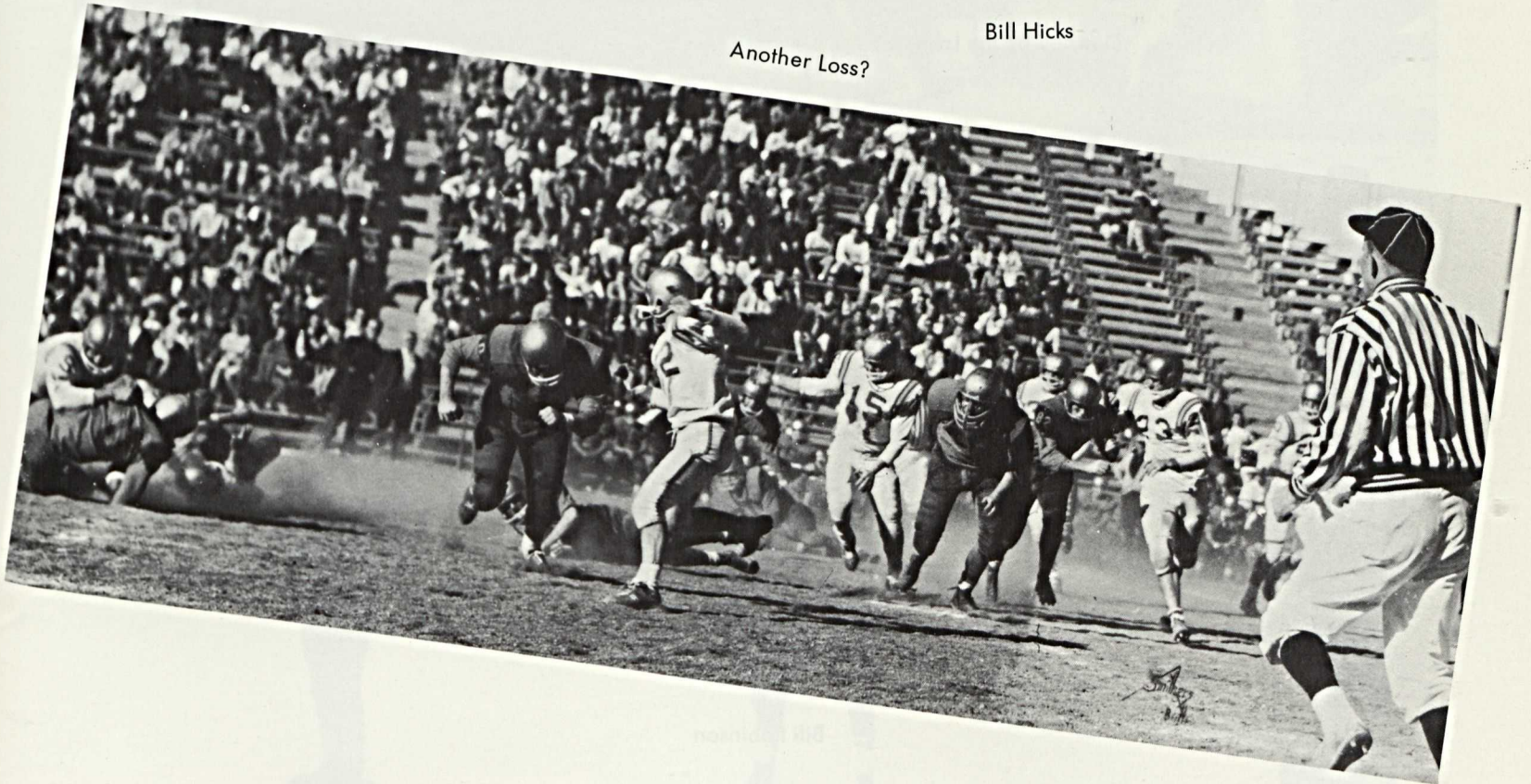


John Reis



Bill Hicks

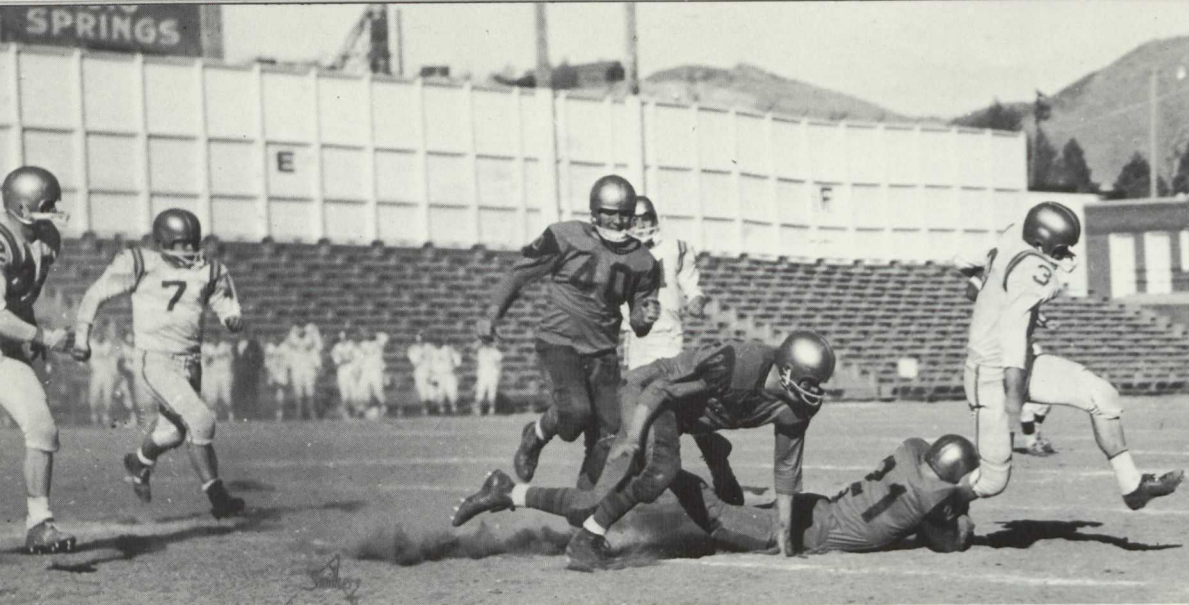
Another Loss?



Chuck Cortright



Ron Glovan



Downey by the Laces



Dan Liva



Bill Robinson



Mike Lewis



Bill Daily

I Don't See a Ball!





End Sweep?



Joe Konicki

Do You See a Ball?



Steve Sands



Chuck Nelson



John Cavanaugh



BASKETBALL

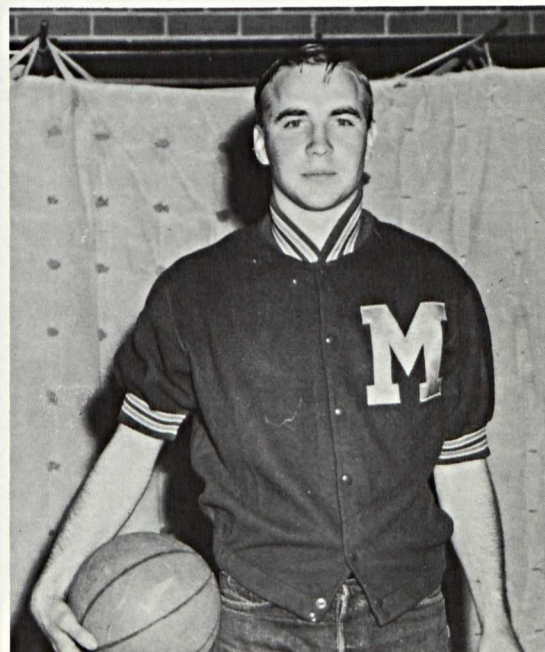


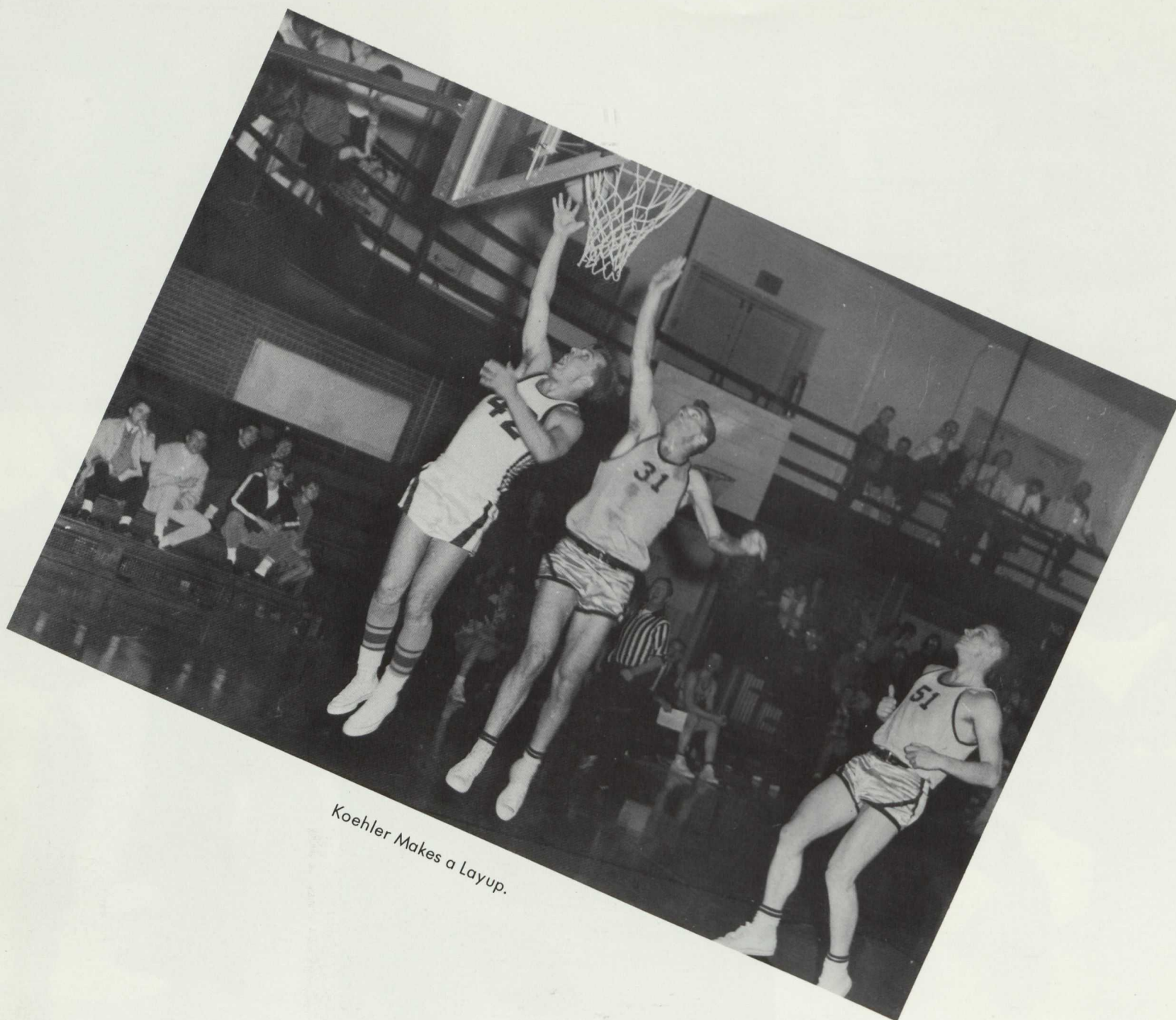
Rodney Ylitalo



Pat Marx

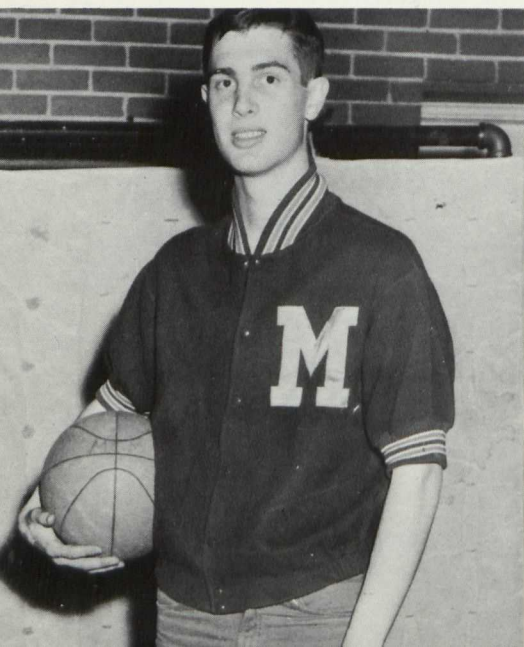
Jim Leifer



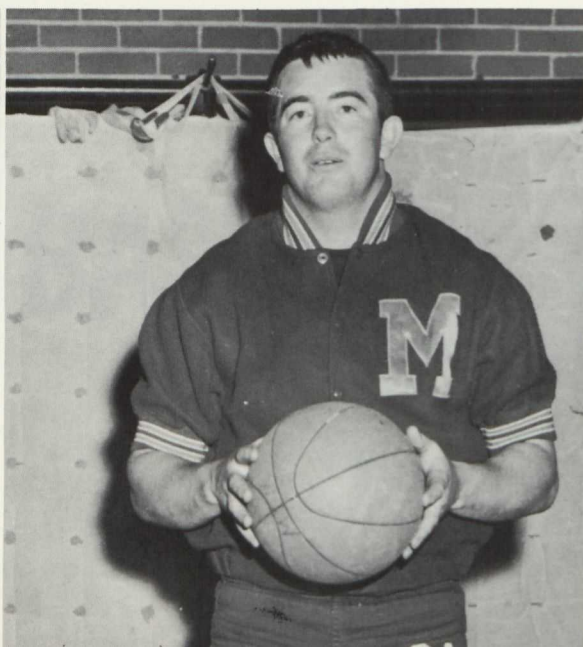


Koehler Makes a Layup.

Gary Carlson

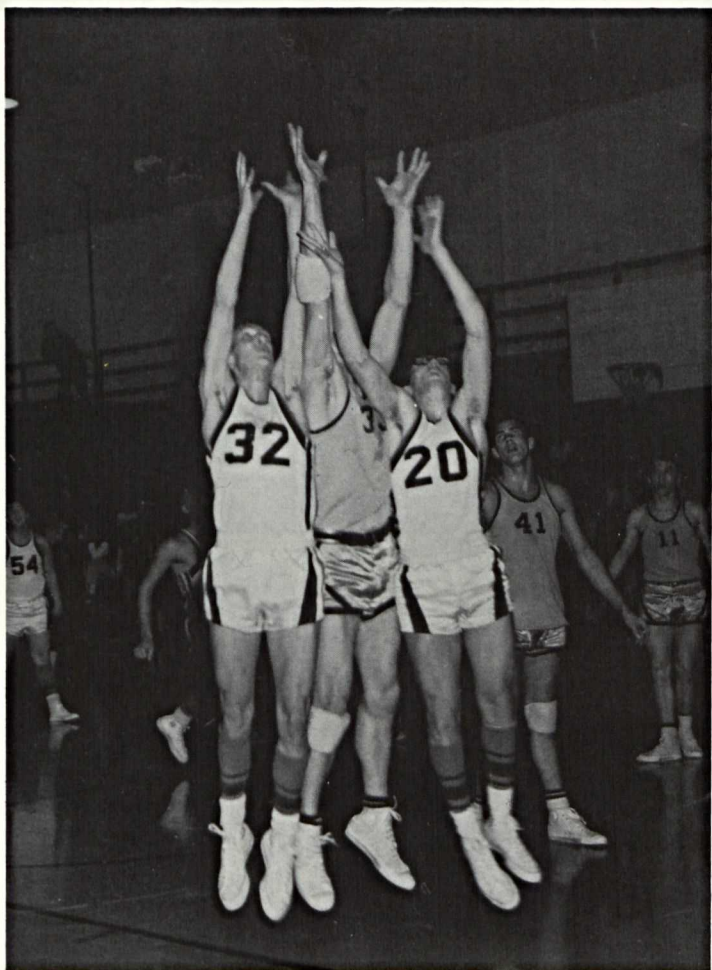


Bill Daily

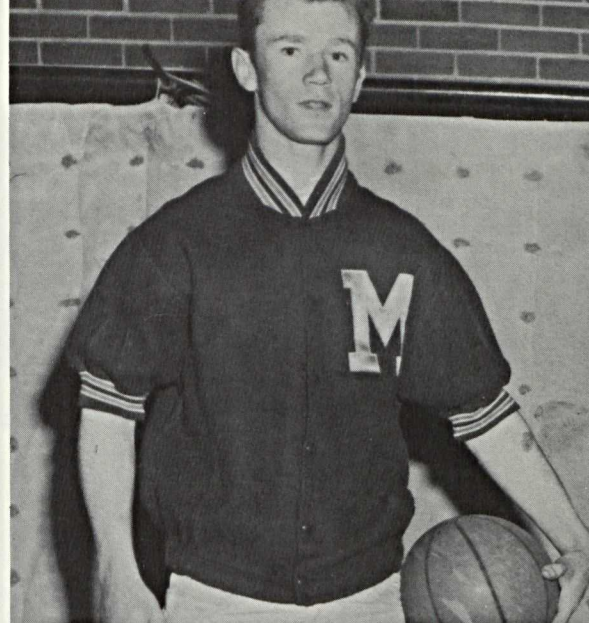


Edward Nordquist



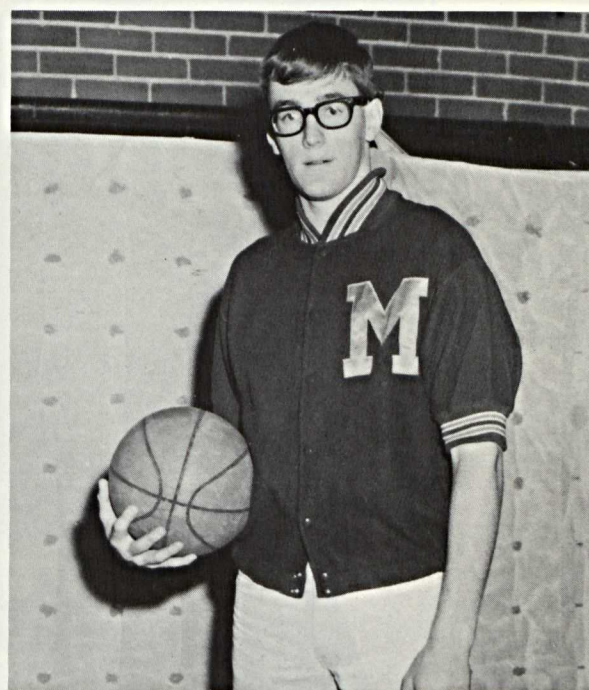


Doin' the Freddie?

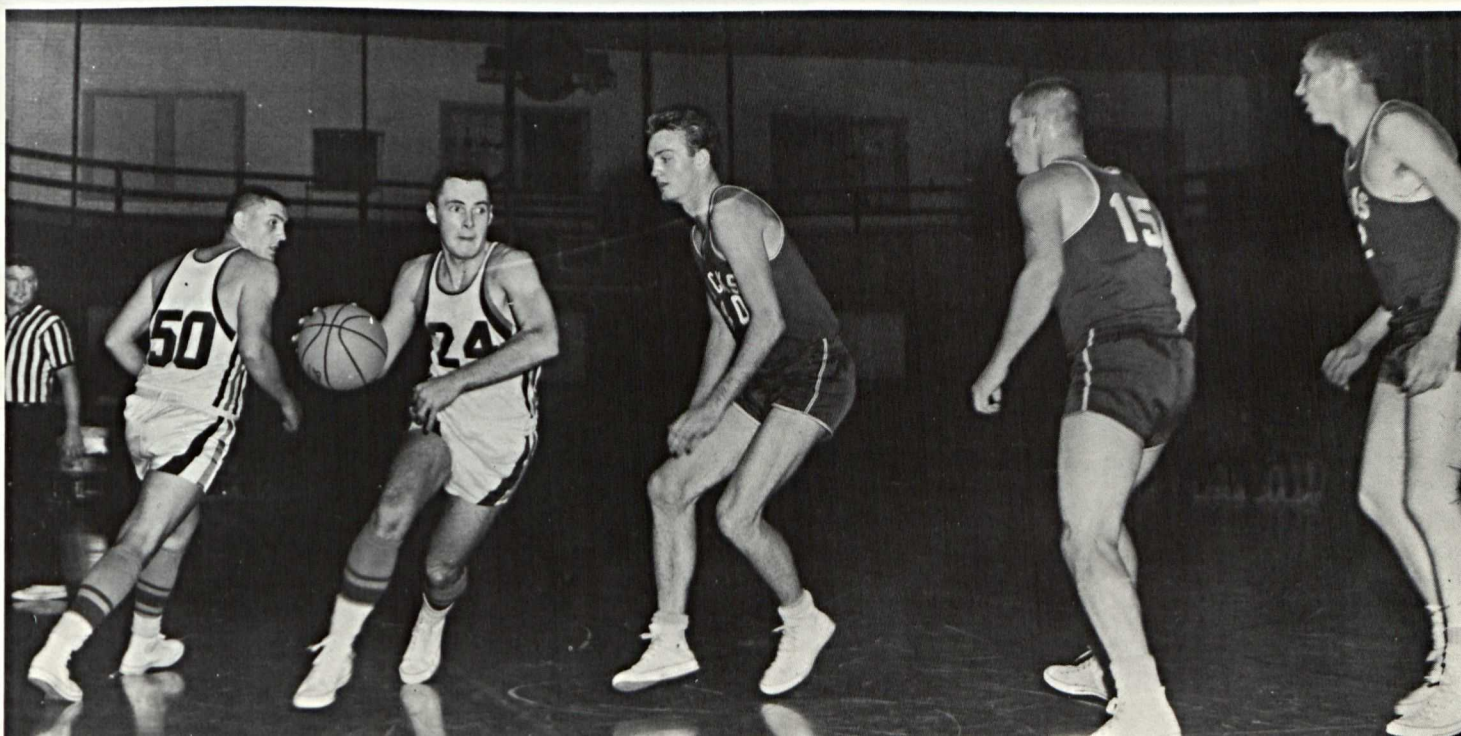


Bob Sullivan

James DeLater

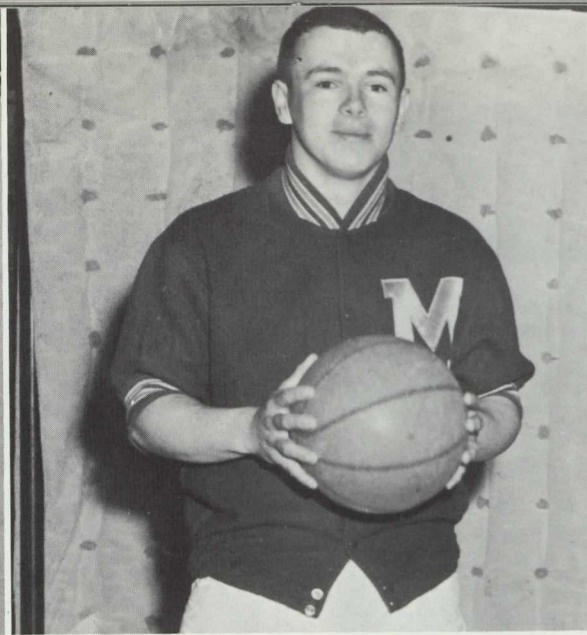


Pat "Elbows" Marx





Bill Hicks

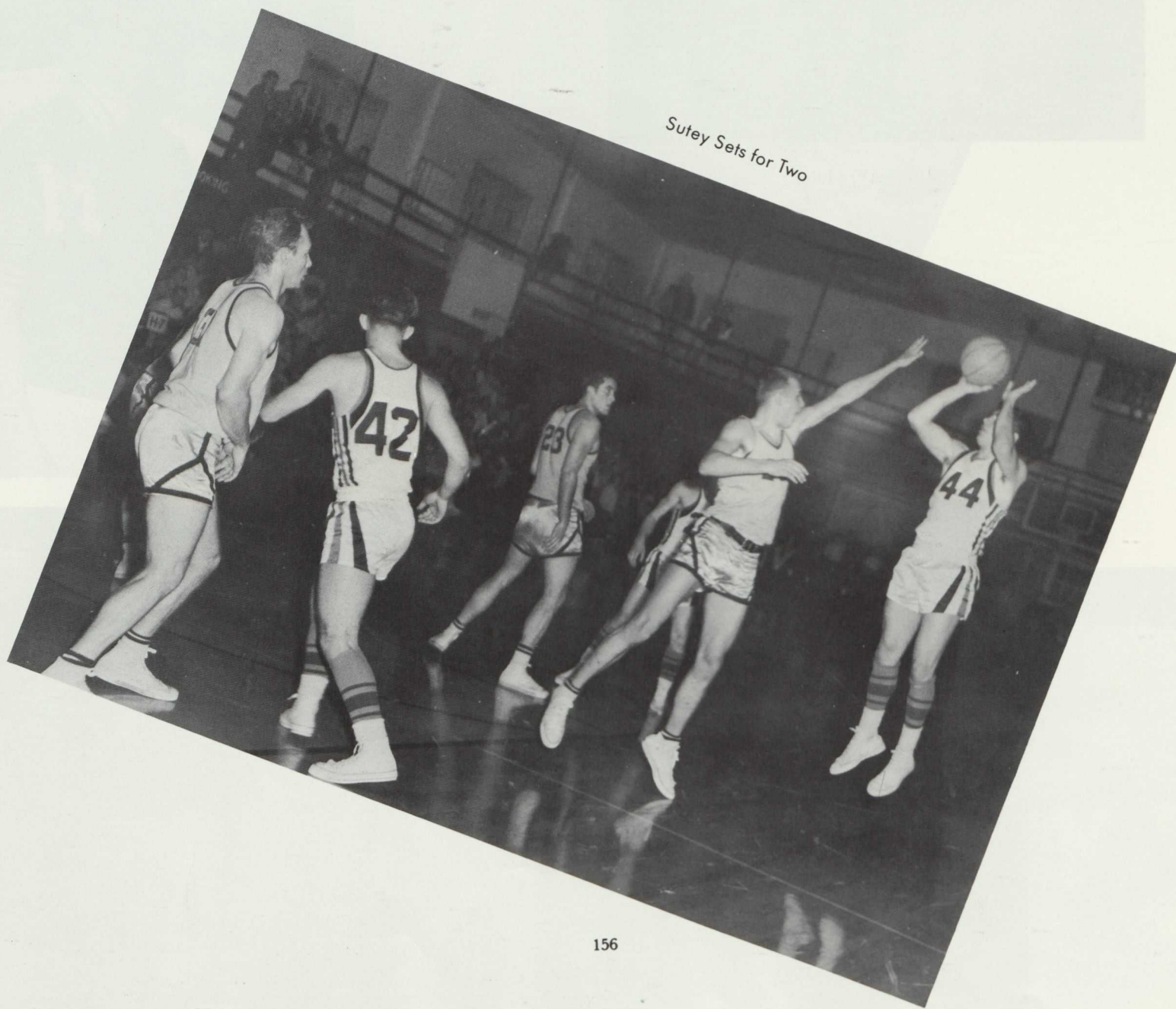


Joseph Briney



John Sutey

Sutey Sets for Two



Senior Service Awards Four or More Letters

ED SIMONICH



BILL MADISON



CURT PETERSON



WALTER BUSENIUS



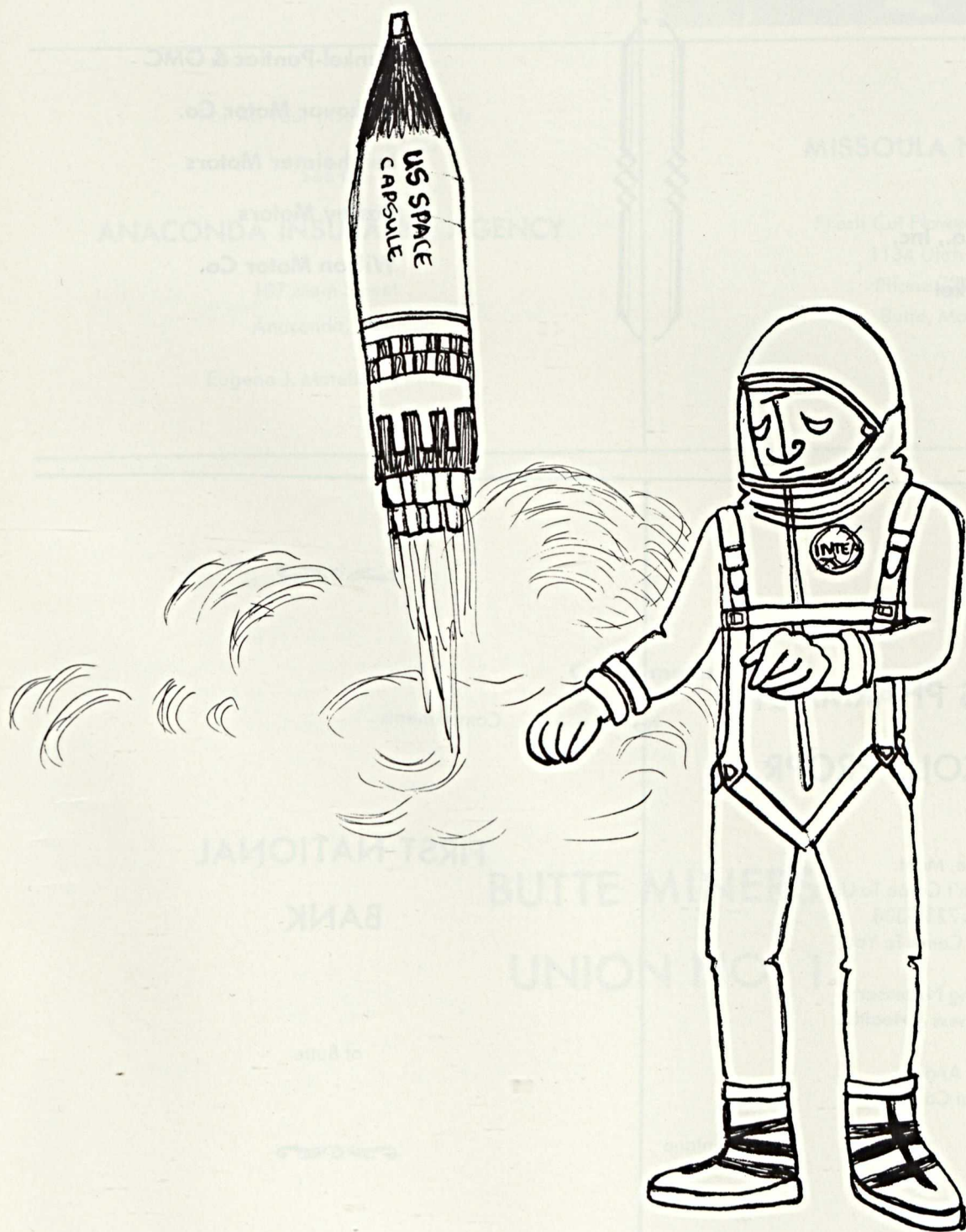
PAT MARX



Track Team

Ken Scherr	880
Don Brunell	Mile & Relay
Frank Koskimaki	440 & Relay
Curt Peterson	440 & Relay
Bart Penny	Javelin & Discus
Ron Lowney	Broad & High Jump
Joe Holland	100, 220 & Relay
Dan Pizzola	Pole-vault
Creighton Barry	Pole-vault

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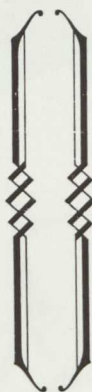
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Currie Chevrolet

Davis Motors, Inc.

Highland Motor Co., Inc.

Maichels Car Market



Kunkel-Pontiac & GMC

Leskovar Motor Co.

Leipheimer Motors

Pasley Motors

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And We'll Come To You"

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For Sickness & Health

And
Garrot Candies

601 W. Park

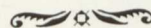
Butte, Montana



Compliments . . .

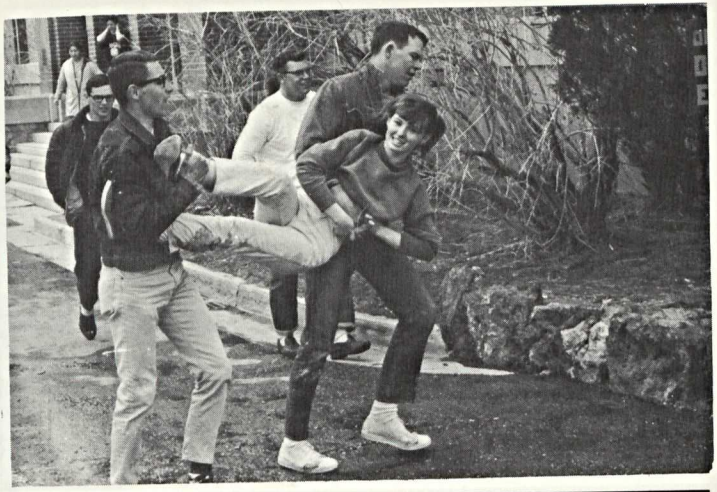
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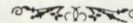
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The
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2. Lay Away
3. Charge

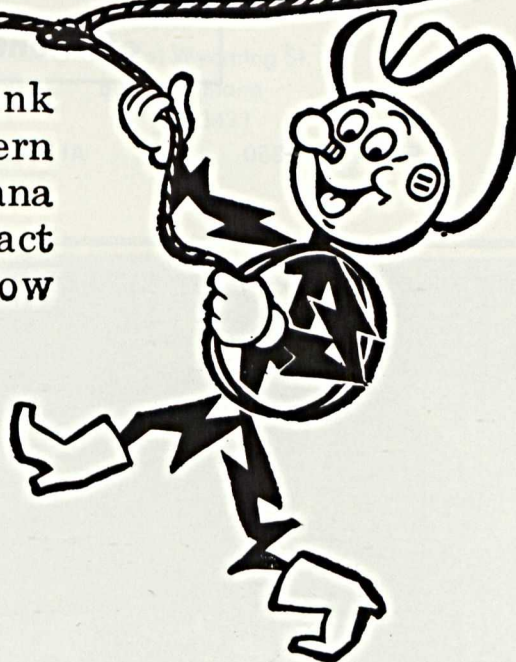
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What's happened to the cowboys and Indians?

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Dee Motor Co.
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CLYDE P. CARPINO

Harrison at Grand

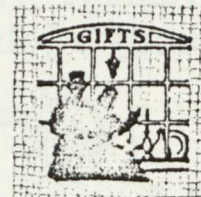
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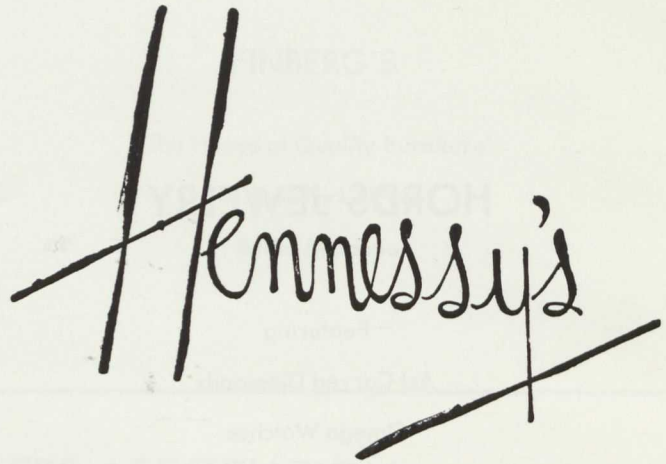
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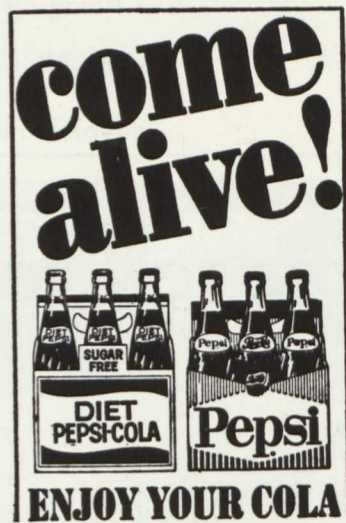
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Anaconda Building Materials Co.
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Bestway Building Center
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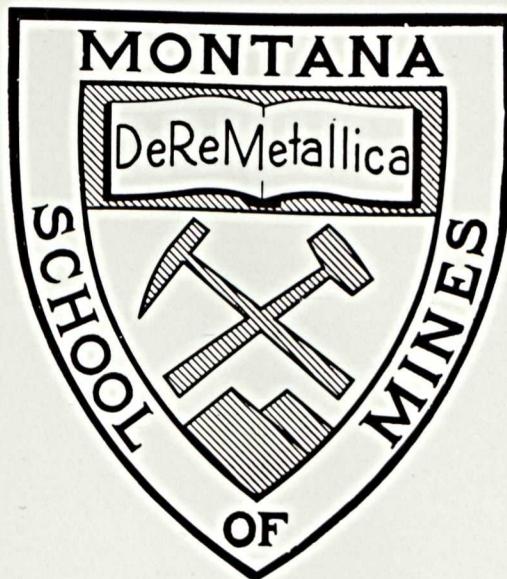


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Downey Drug
Duval-Wallace Company
Lenz Pharmacy
Coca-Cola Bottling Co.
Butte Fruit & Produce Company
Butte Cable T.V.
Coast to Coast Stores

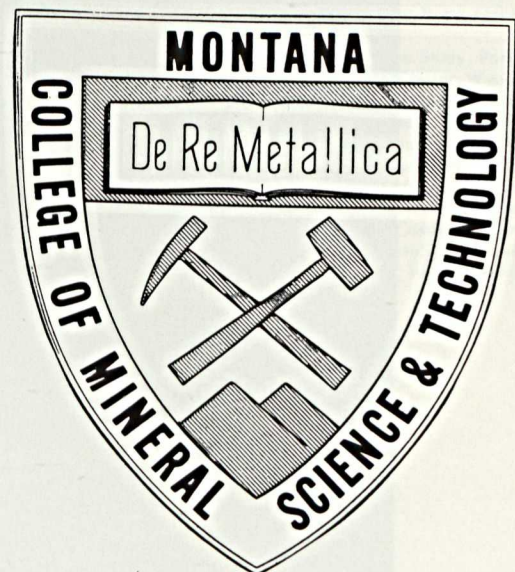
Charlie's New Deal
Lucky Bug Shop
Classic Bar
U.S. Royal Tire Center
H. A. Frank Company
Trethewey's Music Box
Met Tavern
Jackson Studio, Anaconda

GOOD-BY



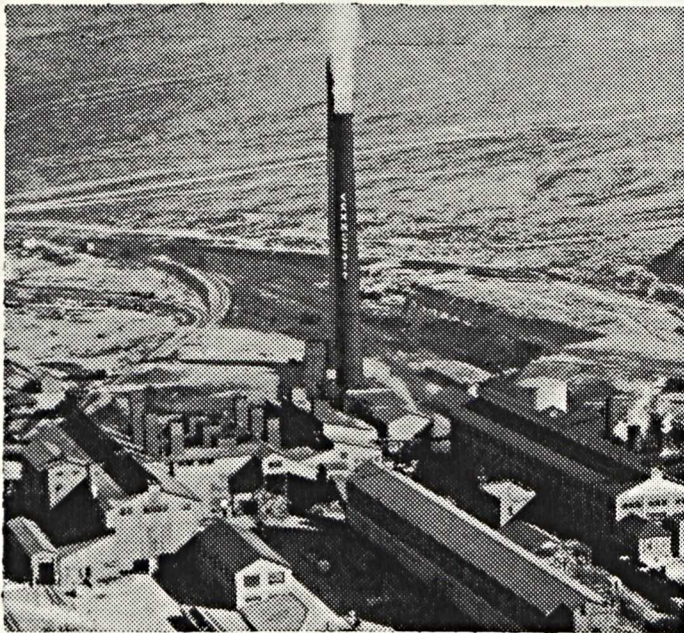
COMPLIMENTS OF
MAGMA STAFF

HELLO



Campus Interviewers





Kennecott Copper Corporation

Nevada Mines Division
ELY, RUTH AND MCGILL, NEVADA



One of America's great industrial companies, Kennecott can be a great company in your future. For information, write Kennecott's Industrial Relations Department, McGill, Nevada

Graduating Class - 1965

Bachelor of Science in Mining Engineering

Lawrence R. Eaton The Anaconda Company,
Butte, Montana
Raymond R. Hyypa Minnesota Reserve Mining,
Silver Bay, Minnesota
Raif M. Zacca Anaconda Company,
Butte, Montana

Bachelor of Science in Metallurgical Engineering

Donald Podobnik Graduate course in Mineral Dressing
Robert W. Toivonen Graduate Study, MSM

Bachelor of Science in Mineral Dressing Engineering

James A. Ek Wabush Iron Company,
Labrador, Canada
Victor M. Galaretta American Smelting & Refining, Peru
Samuel L. Higinbotham Graduate Study, MSM
James F. Jenks Kennecott Copper Corp., Ely, Nevada
Lalit K. Parekh National Lead Company, Niagara, New York
Manley K. Stallings American Smelting & Refining, Helena

Bachelor of Science in Geological Engineering

Donald C. Hruska Graduate Study, MSM
James A. Mazza Continental Oil Company, Casper, Wyoming

Bachelor of Science in Engineering Science

Carl M. Koskimaki Mountain Fuel Supply, Rock Springs, Wyoming
William P. Marx Graduate Study, MSM
Rudy A. Wachtler Joy Manufacturing, Pennsylvania

Bachelor of Science in Geological Engineering (Mining Option)

Paul L. Blair American Smelting & Refining, Nicaragua
Francisco O. Pachas Cerro De Pasco, Peru
Harold F. Yde The Anaconda Company, Butte, Montana

Bachelor of Science in Petroleum Engineering

Mansoor A. Awan Graduate Study, Pakistan
John V. Burk National Supply Company, Casper, Wyoming
Walter A. Busenius, Jr. Texaco, Inc., Casper, Wyoming
Jack L. Weaver Standard Oil Company of Texas, Snyder, Texas
Rodney W. Ylitalo Continental Oil Company, Oklahoma
John G. Evans, III Graduate Study, Pennsylvania State
Joseph R. Kandle Mobil Oil Company, Bakersfield, California
William F. Madison Marathon Oil Company, Texas
Curtis K. Peterson Continental Oil Company, Casper, Wyoming
Edward L. Simonich Graduate Study, Stanford
Keith E. Tyner SunRay D. X. Oil Company, Tulsa, Oklahoma

VALUE YOUR EDUCATION

The student, who early learns through the influence of his home-life to place scholastic achievement and knowledge high in life's ambition, is indeed fortunate.

He will not be among those drop-outs you hear so much about these days as presenting a serious, national social and economic problem.

Students who do not finish high school are asking for the least out of life. Those who drop out of college may severely handicap themselves.

Technological progress, while creating many new jobs, requires more education and more skill. The simple fact is that better jobs await the schooled.

If students realize this, then that knowledge alone contributes to their education. That knowledge will beget knowledge which is the process of education and the end result is an enriched life.

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